

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : STE 3,1 A
 Edition : 08.09.87
 replaces : 07.84
 Calibrating oil : ISO 4113
 Injection pump : VA 4/100H1200 CR 145
 -4
 Type number : 0 460 304 237
 Customer-specific information
 Customer : STEYER
 Engine : WD 408.43

TEST BENCH REQUIREMENTS

Inlet press., bar : 0,2
 Calibrating nozzle-holder
 assembly : 1 688 901 020

Opening
 pressure bar : 172...175

Perforated-plate
 diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : 0,3
 (from BDC) : +-0,02 (0,04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000
 Setting value mm: 3,4...4,2

Supply-pump pressure:

Speed 1/min: 1000
 Setting value bar: 4,7...5,2

Full-load del. with charge press.:

Speed 1/min: 1180

A01

Del. quantity cm³/
 1000H.: 65,0...66,0
 Dispersion cm³/ : 2,0
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 250
 Del. quantity cm³/
 1000H.: 12,0...18,0
 Dispersion cm³/ : 3,0
 1000H.: -

Full-load speed regulation:

Speed 1/min: 1270
 Del. quantity cm³/
 1000H.: 36,0...44,0

Start:

Speed 1/min: 100
 Del. quantity : -
 mind cm³/1000H.: 80,0

Inspection-pump test specifications Test specifications in parentheses

1st speed 1/min: 700
 TD travel mm: 0,5...1,5
 mm: (0,2...1,8)
 2nd speed 1/min: 1000
 TD travel mm: -
 mm: (3,1...4,5)
 3rd speed 1/min: 1140
 TD travel mm: 5,1...5,8
 mm: (4,8...6,1)

Supply-pump pressure characteristic:

1st speed 1/min: 200
 Supply-pump
 pressure bar: 1,2...1,7
 2nd speed 1/min: 1200
 Supply-pump
 pressure bar: 5,5...6,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Overflow : 55...97
 quantity cm³/10s: (40...112)
 2nd speed 1/min: 1200
 Overflow : 55...97
 quantity cm³/10s: (40...112)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1320

Del.quantity cm3/: -
1000H.: -
2nd speed 1/min: 1270
Del.quantity cm3/: 36,0...44,0
1000H.: (35,0...45,0)
3rd speed 1/min: 1180
Del.quantity cm3/: 65,0...66,0
1000H.: (64,5...66,5)
4th speed 1/min: 900
Del.quantity cm3/: 69,0...71,0
1000H.: (68,0...72,0)
5th speed 1/min: 500
Del.quantity cm3/: 62,0...65,0
1000H.: (61,0...66,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1200
Del.quantity cm3/: -
1000H.: -

Idle delivery:

Mfg. date: until : -
1st speed 1/min: 330
Del.quantity cm3/: -
1000H.: -
2nd speed 1/min: 250
Del.quantity cm3/: 12,0...18,0
1000H.: (11,0...19,0)

Mounting and assembly dimensions:

Angles:
Alpha ° : 25 +-4
Beta ° : 40 +-8
Gamma ° : 30 -8
Delta ° : 60 + 8

Initial setting dimensions:

Dimension IV mm : 3,40
Governor-spring washer thickness
Dimension V mm : 24,65

Remarks:

Acceleration from start to full load
with n = 170...250 min.. -1

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,0 I4
Edition : 03.11.87
replaces : 09.85
Calibrating oil : ISO-4113

Injection pump : VE 5/10F2250 L150
Type number : 0 460 405 033

Customer-specific information
Customer : VW

Engine : 153 T

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC) : +/-0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 3,1...3,5

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 5,5...6,1

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del.quantity cm3/
1000H.: 43,5...44,5
Dispersion cm3/ : 2,5
1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 21,5...22,5

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del.quantity cm3/
1000H.: 6,0...10,0

Full-load speed regulation:

Speed 1/min: 2525
Charge press. hPa: 750
Del.quantity cm3/
1000H: 10,0...14,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del.quantity : -
mind cm3/1000H.: 50,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 850
Charge press. hPa: 750
TD travel mm: 1,1...1,9
mm: (0,8...2,2)
2nd speed 1/min: 1500
Charge press. hPa: 750
TD travel mm: 3,1...3,5
mm: (2,6...4,0)
3rd speed 1/min: 2250
Charge press. hPa: 750
TD travel mm: 5,4...6,2
mm: (5,1...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 750
Supply-pump
pressure bar: 3,2...3,8
2nd speed 1/min: 1500

Charge press. hPa: 750
Supply-pump
pressure bar: 5,5...6,1
3rd speed 1/min: 2250
Charge press. hPa: 750
Supply-pump
pressure bar: 7,3...7,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2250
Charge press. hPa: 750
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 850
Charge-air pressure-setting
point hPa: 400
LDA stroke mm: 3,6
Del.quantity cm3/: 34,5...35,5
1000H.: (32,0...38,0)
2nd speed 1/min: 2700
Charge press. hPa: 750
Del.quantity cm3/: 0,0...3,0
1000H.: -
3rd speed 1/min: 2525
Charge press. hPa: 750
Del.quantity cm3/: 10,0...14,0
1000H.: (8,0...16,0)
4th speed 1/min: 2425
Charge press. hPa: 750
Del.quantity cm3/: 23,0...33,0
1000H.: (22,0...34,0)
5th speed 1/min: 2250
Charge press. hPa: 750
Del.quantity cm3/: 37,0...39,0
1000H.: (35,8...40,2)
6th speed 1/min: 1500
Charge press. hPa: 750
Del.quantity cm3/: 43,5...44,5
1000H.: (41,8...46,2)
7th speed 1/min: 850
Charge press. hPa: 400
Del.quantity cm3/: 34,5...35,5
1000H.: (32,0...38,0)
8th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm3/: 21,5...22,5
1000H.: (19,0...25,0)
9th speed 1/min: 500
Charge press. hPa: 750
Del.quantity cm3/: 29,5...32,5
1000H.: (28,0...34,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm3/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 450
Del.quantity cm3/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Charge press. hPa: -
Del.quantity cm3/: -
ind. 1000H.: 18,0
3rd speed 1/min: 500
Charge press. hPa: -
Del.quantity cm3/: 5,0...25,0
1000H.: -

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,7...6,0
MS mm : 1,7...1,9
SVS max. mm : 4,2

Remarks:

:

Correction at adjusting nut (46)

Make TAS adjustment only at full
manifold-pressure compensator
pressure.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,0 IS
Edition : 03.11.87
replaces : 09.85
Calibrating oil : ISO-4113

Injection pump : VE 5/10F2250 L150-1
Type number : 0 460 405 034

Customer-specific information
Customer : VW

Engine : 153 T

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC): +/-0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 3,1...3,5

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 5,5...6,1

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del.quantity cm3/
1000H.: 43,5...44,5
Dispersion cm3/ : 2,5
1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 21,5...22,5

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del.quantity cm3/
1000H.: 6,0...10,0

Full-load speed regulation:

Speed 1/min: 2525
Charge press. hPa: 750
Del.quantity cm3/
1000H: 10,0...14,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del.quantity : -
mind cm3/1000H.: 50,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 850
Charge press. hPa: 750
TD travel mm: 1,1...1,9
mm: (0,8...2,2)

2nd speed 1/min: 1500
Charge press. hPa: 750
TD travel mm: 3,1...3,5
mm: (2,6...4,0)

3rd speed 1/min: 2250
Charge press. hPa: 750
TD travel mm: 5,4...6,2
mm: (5,1...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 750
Supply-pump
pressure bar: 3,2...3,8
2nd speed 1/min: 1500

Charge press. hPa: 750
Supply-pump
pressure bar: 5,5...6,1
3rd speed 1/min: 2250
Charge press. hPa: 750
Supply-pump
pressure bar: 7,3...7,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2250
Charge press. hPa: 750
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 850
Charge-air pressure-setting
point hPa: 400
LDA stroke mm: 3,6
Del. quantity cm3/: 34,5...35,5
1000H.: (32,0...38,0)
2nd speed 1/min: 2700
Charge press. hPa: 750
Del. quantity cm3/: 0,0...3,0
1000H.: -
3rd speed 1/min: 2525
Charge press. hPa: 750
Del. quantity cm3/: 10,0...14,0
1000H.: (8,0...16,0)
4th speed 1/min: 2425
Charge press. hPa: 750
Del. quantity cm3/: 23,0...33,0
1000H.: (22,0...34,0)
5th speed 1/min: 2250
Charge press. hPa: 750
Del. quantity cm3/: 37,0...39,0
1000H.: (35,8...40,2)
6th speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm3/: 43,5...44,5
1000H.: (41,8...46,2)
7th speed 1/min: 850
Charge press. hPa: 400
Del. quantity cm3/: 34,5...35,5
1000H.: (32,0...38,0)
8th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm3/: 21,5...22,5
1000H.: (19,0...25,0)
9th speed 1/min: 500
Charge press. hPa: 750
Del. quantity cm3/: 29,5...32,5
1000H.: (28,0...34,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 2250
Del. quantity cm3/: 0...3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm3/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 450
Del. quantity cm3/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Charge press. hPa: -
Del. quantity cm3/: -
ind. 1000H: 18,0

3rd speed 1/min: 500
Charge press. hPa: -
Del. quantity cm3/: 5,0...25,0
1000H.: -

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,7...6,0
MS mm : 1,7...1,9
SVS max. mm : 4,2

Remarks:

:

Correction at adjusting nut (46)

Make TAS adjustment only at full
manifold-pressure compensator

pressure.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,4 M
Edition : 04.11.87
replaces : 19.12.86
Calibrating oil : ISO-4113

Injection pump : VE 6/10F2150 L152
Type number : 0 460 406 040

Customer-specific information
Customer : VW

Engine : 087T-LT

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 2,3...2,7

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 5,5...6,1

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm3/
1000H.: 41,5...42,5
Dispersion cm3/ : 2,5
1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 600
Del. quantity cm3/
1000H.: 23,5...24,5

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del. quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,0
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2300
Charge press. hPa: 750
Del. quantity cm3/
1000H.: 22,0...23,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del. quantity : -
mind cm3/1000H.: 35,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 1000
Charge press. hPa: 750
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
2nd speed 1/min: 1500
Charge press. hPa: 750
TD travel mm: 2,3...2,7
mm: (1,8...3,2)
3rd speed 1/min: 2150
Charge press. hPa: 750
TD travel mm: 4,4...5,2
mm: (4,1...5,5)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 750

Supply-pump
pressure bar: 3,1...3,7
2nd speed 1/min: 1500
Charge press. hPa: 750
Supply-pump
pressure bar: 5,5...6,1
3rd speed 1/min: 2150
Charge press. hPa: 750
Supply-pump
pressure bar: 7,2...7,8

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2150
Charge press. hPa: 750
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting
point hPa: 300
LDA stroke mm: 4,5
Del. quantity cm3/: 32,5...33,5
1000H.: (30,0...36,0)
2nd speed 1/min: 2600
Charge press. hPa: 750
Del. quantity cm3/: 0,0...3,0
1000H.: -
3rd speed 1/min: 2400
Charge press. hPa: 750
Del. quantity cm3/: 10,0...14,0
1000H.: (8,0...16,0)
4th speed 1/min: 2300
Charge press. hPa: 750
Del. quantity cm3/: 17,5...27,5
1000H.: (16,5...28,5)
5th speed 1/min: 2150
Charge press. hPa: 750
Del. quantity cm3/: 35,0...37,0
1000H.: (33,8...38,2)
6th speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm3/: 41,5...42,5
1000H.: (39,8...44,2)
7th speed 1/min: 750
Charge press. hPa: 300
Del. quantity cm3/: 32,5...33,5
1000H.: (30,0...36,0)
8th speed 1/min: 600
Charge press. hPa: -
Del. quantity cm3/: 23,5...24,5
1000H.: (21,0...27,0)
9th speed 1/min: 600
Charge press. hPa: 750

Del. quantity cm3/: 35,5...38,5
1000H: (34,0...40,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm3/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 450
Del. quantity cm3/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Charge press. hPa: -
Del. quantity cm3/: -
ind. 1000H: 25,0

2nd speed 1/min: 500
Charge press. hPa: -
Del. quantity cm3/: -
max. 1000H : 27,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 6,3...6,6
MS mm : 1,0...1,2
SVS max. mm : 3,8
FH mm : 1,8...2,4

Remarks:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ONA 3,4 A
Edition : 16.11.87
replaces : 16.12.86
Calibrating oil : ISO-4113

Injection pump : VE 6/10F1800 R209
Type number : 0 460 406 048

Customer-specific information
Customer : ONAN

Engine : L 634 T

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC) : +/-0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1400
Charge press. hPa: 800
Setting value mm: 4,3...4,7

Supply-pump pressure:

Speed 1/min: 1400
Charge press. hPa: 800
Setting value bar: 4,8...5,4

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 800
Del. quantity cm³/
1000H.: 58,5...59,5
Dispersion cm³/
1000H.: (4,0)

Full-load del. w/out charge press.:

Speed 1/min : 700
Del. quantity cm³/
1000H.: 44,0...45,0

Low-idle speed regulation:

Speed 1/min: 400
Charge press. hPa: -
Del. quantity cm³/
1000H.: 14,0...18,0
Dispersion cm³/
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 1900
Charge press. hPa: 800
Del. quantity cm³/
1000H: 37,0...43,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 42,0

Load-dependent start of delivery:

Speed 1/min: 1400

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 800
Charge press. hPa: 800
TD travel mm: 1,4...2,2
mm: (1,1...2,5)

2nd speed 1/min: 1400
Charge press. hPa: 800
TD travel mm: 4,3...4,7
mm: (3,8...5,2)

3rd speed 1/min: 1800
Charge press. hPa: 800
TD travel mm: 5,8...6,6
mm: (5,5...6,9)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 800
Supply-pump
pressure bar: 2,7...3,3
2nd speed 1/min: 1400
Charge press. hPa: 800
Supply-pump
pressure bar: 4,8...5,4
3rd speed 1/min: 1800
Charge press. hPa: 800
Supply-pump
pressure bar: 6,0...6,6

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 800
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 1800
Charge press. hPa: 800
Overflow : 55...138
quantity cm3/10s: (41...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 200
LDA stroke mm: 6,5
Del.quantity cm3/: 47,0...48,0
1000H.: (45,2...49,8)
2nd speed 1/min: 2050
Charge press. hPa: 800
Del.quantity cm3/: 0,0...3,0
1000H.: -
3rd speed 1/min: 2000
Charge press. hPa: 800
Del.quantity cm3/: 5,5...14,5
1000H.: -
4th speed 1/min: 1950
Charge press. hPa: 800
Del.quantity cm3/: 23,0...31,0
1000H.: (22,0...32,0)
5th speed 1/min: 1900
Charge press. hPa: 800
Del.quantity cm3/: 37,0...43,0
1000H.: (36,0...44,0)
6th speed 1/min: 1800
Charge press. hPa: 800
Del.quantity cm3/: 51,5...54,5
1000H.: (51,2...55,8)
7th speed 1/min: 1400
Charge press. hPa: 800
Del.quantity cm3/: 58,5...59,5
1000H.: (56,7...61,3)
8th speed 1/min: 700
Charge press. hPa: 800
Del.quantity cm3/: 58,0...61,0
1000H.: -

9th speed 1/min: 700
Charge press. hPa: -
Del.quantity cm3/: 44,0...45,0
1000H.: (42,2...46,8)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1800
Del.quantity cm3/: 0...3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del.quantity cm3/: 14,0...18,0
1000H.: (12,0...20,0)
2nd speed 1/min: 450
Del.quantity cm3/: 0,0...6,0
1000H.: -
3rd speed 1/min: 350
Del.quantity cm3/: 26,5...33,5
1000H.: (26,0...34,0)

Automatic starting fuel delivery:

1st speed 1/min: 220
Del.quantity cm3/: -
ind. 1000H: 42,0
2nd speed 1/min: 300
Del.quantity cm3/: -
max. 1000H : 42,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,7...6,0
MS	mm	:	1,3...1,55
SVS max.	mm	:	1,4

Remarks:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ONA 3,4 B
Edition : 16.11.87
replaces : 16.12.86
Calibrating oil : ISO-4113

Injection pump : VE 6/10F1400 R209-1
Type number : O 460 406 052

Customer-specific information
Customer : ONAN

Engine : L 634 T

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC): +/-0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
Charge press. hPa: 800
Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 800
Setting value bar: 3,8...4,4

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 800
Del. quantity cm3/
1000H.: 61,0...62,0
Dispersion cm3/ : 3,0
1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 700
Del. quantity cm3/
1000H.: 44,5...45,5

Low-idle speed regulation:

Speed 1/min: 400
Charge press. hPa: -
Del. quantity cm3/
1000H.: 14,0...18,0
Dispersion cm3/ : 3,0
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 1480
Charge press. hPa: 800
Del. quantity cm3/
1000H.: 42,0...46,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm3/1000H.: 42,0

Load-dependent start of delivery:

Speed 1/min: 1100

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 800
Charge press. hPa: 800
TD travel mm: 1,4...2,2
mm: (1,1...2,5)
2nd speed 1/min: 1100
Charge press. hPa: 800
TD travel mm: 2,8...3,2
mm: (2,3...3,7)
3rd speed 1/min: 1400
Charge press. hPa: 800
TD travel mm: 4,2...4,8
mm: (3,8...5,2)

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 800
Supply-pump pressure bar: 2,3...2,9
2nd speed 1/min: 1100
Charge press. hPa: 800
Supply-pump pressure bar: 3,8...4,4
3rd speed 1/min: 1400
Charge press. hPa: 800
Supply-pump pressure bar: 4,8...5,4

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 800
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 1400
Charge press. hPa: 800
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 200
LDA stroke mm: 6,5
Del. quantity cm3/ : 47,0...48,0
1000H.: (45,2...49,8)
2nd speed 1/min: 1600
Charge press. hPa: 800
Del. quantity cm3/ : 0,0...6,0
1000H.: -
3rd speed 1/min: 1560
Charge press. hPa: 800
Del. quantity cm3/ : 14,0...22,0
1000H.: -
4th speed 1/min: 1480
Charge press. hPa: 800
Del. quantity cm3/ : 42,0...46,0
1000H.: (40,0...48,0)
5th speed 1/min: 1400
Charge press. hPa: 800
Del. quantity cm3/ : 56,5...59,5
1000H.: (55,7...60,3)
6th speed 1/min: 1100
Charge press. hPa: 800
Del. quantity cm3/ : 61,0...62,0
1000H.: (59,2...63,8)
7th speed 1/min: 700
Charge press. hPa: 800
Del. quantity cm3/ : 58,0...60,0
1000H.: -
8th speed 1/min: 700
Charge press. hPa: -
Del. quantity cm3/ : 44,5...45,5
1000H.: (42,7...47,3)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1400
Del.quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del.quantity cm3/: 14,0..18,0
1000H.: 12,0...20,0)
2nd speed 1/min: 450
Del.quantity cm3/: 0,0...6,0
1000H.: -
3rd speed 1/min: 350
Del.quantity cm3/: 26,5..33,5
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 220
Del.quantity cm3/: -
ind. 1000H: 42,0

2nd speed 1/min: 300
Del.quantity cm3/: -
max. 1000H : 42,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,7...6,0
MS mm : 1,3..1,55
SVS max. mm : 1,6

Remarks:

:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 3,1 F
Edition : 16.11.87
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE 4/11F1900 R217 B
Type number : 0 460 414 027

Customer-specific information
Customer : VOLVO-PENTA

Engine : TAMD 31

Power k: 95

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : 0,3
(from BDC): +/-0,02 (0,04)

Indicator setting:
Piston stroke mm: 1.66
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 2,3...2,7

Supply-pump pressure:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value bar: 6,1...6,7

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm3/
 1000H.: 93,5...94,5
 Dispersion cm3/ : 5,0
 1000H.: (5,0)

Full-load del. w/out charge press.:

Speed 1/min : 650
 Del. quantity cm3/
 1000H.: 58,5...59,5

Low-idle speed regulation:

Speed 1/min: 350
 Charge press. hPa: -
 Del. quantity cm3/
 1000H.: 23,0...27,0
 Dispersion cm3/ : 3,5
 1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 2100
 Charge press. hPa: 1000
 Del. quantity cm3/
 1000H.: 14,5...20,5

Start:

Speed 1/min: 100
 Del. quantity : -
 mind cm3/1000H.: 95,0

Inspection-pump test specifications Test specifications in parentheses

1st speed 1/min: 1300
 Charge press. hPa: 1000
 TD travel mm: 0,5...1,3
 mm: (0,2...1,6)
 2nd speed 1/min: 1500
 Charge press. hPa: 1000
 TD travel mm: 2,3...2,7
 mm: (1,8...3,2)
 3rd speed 1/min: 1900
 Charge press. hPa: 1000
 TD travel mm: 4,1...4,9
 mm: (3,8...5,2)

Supply-pump pressure characteristic:

1st speed 1/min: 700
 Charge press. hPa: 1000
 Supply-pump pressure bar: 3,4...4,0
 2nd speed 1/min: 1500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6,1...6,7
 3rd speed 1/min: 1900
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7,5...8,1

Overflow quantity at overflow valve:

1st speed 1/min: 700
 Charge press. hPa: 1000
 Overflow : 41...83
 quantity cm3/10s: (26...98)
 2nd speed 1/min: 1900
 Charge press. hPa: 1000
 Overflow : 55...138
 quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
 Charge-air pressure-setting point hPa: 300
 LDA stroke mm: 6,4
 Del. quantity cm3/ : 84,0...85,0
 1000H.: (82,2...86,8)
 2nd speed 1/min: 2200
 Charge press. hPa: 1000
 Del. quantity cm3/ : 0,0...3,0
 1000H.: -
 3rd speed 1/min: 2100
 Charge press. hPa: 1000
 Del. quantity cm3/ : 14,5...20,5
 1000H.: (13,5...21,5)
 4th speed 1/min: 1900
 Charge press. hPa: 1000
 Del. quantity cm3/ : 85,0...88,0
 1000H.: (83,5...89,5)
 5th speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm3/ : 93,5...94,5
 1000H.: (91,7...96,3)
 6th speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm3/ : 97,7...100,3
 1000H.: (96,7...101,3)
 7th speed 1/min: 700
 Charge press. hPa: 1000
 Del. quantity cm3/ : 96,5...99,5
 1000H.: (95,0...101,0)
 8th speed 1/min: 650
 Charge press. hPa: -

Del. quantity cm3/: 58,5...59,5
1000H: (56,7...61,3)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1900
Del. quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
Del. quantity cm3/: 23,0..27,0
1000H.: (20,0..30,0)
2nd speed 1/min: 400
Del. quantity cm3/: 7,0...13,0
1000H.: (5,5...14,5)
3rd speed 1/min: 480
Del. quantity cm3/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Del. quantity cm3/: -
ind. 1000H: 74,0

2nd speed 1/min: 540
Del. quantity cm3/: -
max. 1000H : 72,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,1...5,4
MS mm : 0,9..1,15
SVS max. mm : 4,1

Remarks:

:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L5
Edition : 04.11.87
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE 6/12F1250 R173-9
Type number : 0 460 426 102

Customer-specific information
Customer : CUMMINS

Engine : 6 BTA -590 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 688 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +/-0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,85
mm : +/-0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Charge press. hPa: 1000

A20

Setting value mm: 1,3...1,7

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 3,2...3,8

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 84,5...85,5
Dispersion cm3/ : 4,0
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 68,5...69,5

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del.quantity cm3/
1000H.: 8,0...14,0
Dispersion cm3/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300
Charge press. hPa: 1000
Del.quantity cm3/
1000H: 59,0...65,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del.quantity : -
mind cm3/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0,4...1,2
mm: (0,1...1,5)

2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 1,3...1,7
mm: (0,8...2,2)

3rd speed 1/min: 1050
Charge press. hPa: 1000

TD travel mm: 2,0...2,8
mm: (1,7...3,1)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2,2...2,8
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3,2...3,8
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 4,5...5,1

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 400
LDA stroke mm: 4,5
Del. quantity cm³/: 77,5...78,5
1000H.: (74,0...82,0)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1370
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1330
Charge press. hPa: 1000
Del. quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/: 59,0...65,0
1000H.: (56,0...68,0)
6th speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 76,0...79,0
1000H.: (74,5...80,5)
7th speed 1/min: 1050
Charge press. hPa: 1000

Del. quantity cm³/: 80,5...83,5
1000H.: (78,5...85,5)
8th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/: 84,5...85,5
1000H.: (82,0...88,0)
9th speed 1/min: 700
Charge press. hPa: 400
Del. quantity cm³/: 77,5...78,5
1000H.: (74,0...82,0)
10th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 68,5...69,5
1000H.: (65,0...73,0)
11th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 84,0...92,0
1000H.: -

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del. quantity cm³/: 0...3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 500
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Del. quantity cm³/: -
ind. 1000H: 70,0

2nd speed 1/min: 400
Del. quantity cm³/: -
max. 1000H : 70,0

Shutoff electromagnet:

cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,1...5,4
MS	mm	:	1,1...1,35
SVS max.	mm	:	2,0
XK	mm	:	18,8...20,8
XL	mm	:	13,8...17,2

Remarks:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,7 A
 Edition : 04.11.87
 replaces : 16.12.86
 Calibrating oil : ISO-4113
 Injection pump : VE 4/ 8F2300 R171
 Type number : 0 460 484 010
 Customer-specific information
 Customer : PEUGEOT
 Engine : XUD7

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50
 Inlet press., bar : 0,35
 Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 450

Start of delivery
 Prestroke mm : -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
 Setting value mm: 3,4...3,88

Supply-pump pressure:

Speed 1/min: 1250
 Setting value bar: 4,3...4,9

Full-load del. w/out charge press.:

Speed 1/min : 1250
 Del.quantity cm3/
 1000H.: 28,0...29,0
 Dispersion cm3/: 2,0
 1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 375
 Del.quantity cm3/
 1000H.: 8,0...12,0
 Dispersion cm3/: 2,0
 1000H.: (3,0)
 Residual-Delivery Setting
 Speed 1/min: 550
 Del.quantity cm3/
 1000H.: 3,5...4,5

Full-load speed regulation:

Speed 1/min: 2440
 Del.quantity cm3/
 1000H: 19,0...25,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm3/1000H.: 42,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
 Test specifications in parentheses

1st speed 1/min: 800
 TD travel mm: 0,8...1,6
 mm: (0,5...1,9)
 2nd speed 1/min: 1250
 TD travel mm: 3,4...3,8
 mm: (2,9...4,3)
 3rd speed 1/min: 2000
 TD travel mm: 7,5...8,3
 mm: (7,2...8,6)

Supply-pump pressure characteristic:

1st speed 1/min: 800
 Supply-pump
 pressure bar: 3,0...3,6
 2nd speed 1/min: 1250
 Supply-pump
 pressure bar: 4,3...4,9
 3rd speed 1/min: 2000
 Supply-pump
 pressure bar: 6,4...7,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Oveflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2250
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2690
Del.quantity cm3/: 3,5...10,5
1000H.: -
2nd speed 1/min: 2540
Del.quantity cm3/: 11,5...17,5
1000H.: (10,0...19,0)
3rd speed 1/min: 2440
Del.quantity cm3/: 19,0...25,0
1000H.: (18,0...26,0)
4th speed 1/min: 2250
Del.quantity cm3/: 27,0...29,0
1000H.: (25,7...30,3)
5th speed 1/min: 2000
Del.quantity cm3/: 27,5...29,5
1000H.: (26,2...30,8)
6th speed 1/min: 1250
Del.quantity cm3/: 28,0...29,0
1000H.: (26,2...30,8)
7th speed 1/min: 800
Del.quantity cm3/: 28,0...30,0
1000H.: (26,0...32,0)
8th speed 1/min: 500
Del.quantity cm3/: 28,0...31,0
1000H.: (26,5...32,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del.quantity cm3/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm3/: 8,0...12,0
1000H.: (6,0...14,0)

High Idle:

Speed 1/min: 450
Del.quantity cm3/: 8,0...12,0
1000H.: (6,0...14,0)

Residual:

Speed 1/min: 550
Del.quantity : 3,5...4,5
1000H.: (2,5...5,5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del.quantity cm3/: -
ind. 1000H.: 34,0

2nd speed 1/min: 300
Del.quantity cm3/: -
max. 1000H.: 64,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,2...5,5
MS	mm	: 1,3...1,5
SVS max.	mm	: 3,0
XK	mm	: 18,9...20,9
XL	mm	: 12,2...15,6

Remarks:

Setting of residual delivery.

Idle setting (LFG) according to
VDT-I-460/135.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,7 A1
 Edition : 04.11.87
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE 4/ 8F2300 R171-1
 Type number : 0 460 484 014
 Customer-specific information
 Customer : PEUGEOT
 Engine : XUD7

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50
 Inlet press., bar : 0,35
 Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 450

Start of delivery
 Prestroke mm : -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
 Setting value mm: 3,4...3,88

Supply-pump pressure:

Speed 1/min: 1250
 Setting value bar: 4,3...4,9

Full-load del. w/out charge press.:

Speed 1/min : 1250
 Del.quantity cm3/
 1000H.: 28,0...29,0
 Dispersion cm3/: 2,0
 1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 375
 Del.quantity cm3/
 1000H.: 8,0...12,0
 Dispersion cm3/: 2,0
 1000H.: (3,0)
 Residual-Delivery Setting
 Speed 1/min: 550
 Del.quantity cm3/
 1000H.: 3,5...4,5

Full-load speed regulation:

Speed 1/min: 2400
 Del.quantity cm3/
 1000H.: 19,0...25,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm3/1000H.: 42,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
 Test specifications in parentheses

1st speed 1/min: 800
 TD travel mm: 0,8...1,6
 mm: (0,5...1,9)
 2nd speed 1/min: 1250
 TD travel mm: 3,4...3,8
 mm: (2,9...4,3)
 3rd speed 1/min: 2000
 TD travel mm: 7,5...8,3
 mm: (7,2...8,6)

Supply-pump pressure characteristic:

1st speed 1/min: 800
 Supply-pump
 pressure bar: 3,0...3,6
 2nd speed 1/min: 1250
 Supply-pump
 pressure bar: 4,3...4,9
 3rd speed 1/min: 2000
 Supply-pump
 pressure bar: 6,4...7,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2250
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2650
Del.quantity cm3/: 3,5...10,5
1000H.: -
2nd speed 1/min: 2500
Del.quantity cm3/: 11,5...17,5
1000H.: (11,0...18,0)
3rd speed 1/min: 2400
Del.quantity cm3/: 19,0...25,0
1000H.: (18,5...25,5)
4th speed 1/min: 2250
Del.quantity cm3/: 27,0...29,0
1000H.: (25,7...30,3)
5th speed 1/min: 2000
Del.quantity cm3/: 27,5...29,5
1000H.: (26,2...30,8)
6th speed 1/min: 1250
Del.quantity cm3/: 28,0...29,0
1000H.: (26,2...30,8)
7th speed 1/min: 800
Del.quantity cm3/: 28,0...30,0
1000H.: (26,0...32,0)
8th speed 1/min: 500
Del.quantity cm3/: 28,0...31,0
1000H.: (26,5...32,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del.quantity cm3/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm3/: 8,0...12,0
1000H.: (6,0...14,0)

High Idle:

Speed 1/min: 450
Del.quantity cm3/: 8,0...12,0
1000H.: (6,0...14,0)

Residual:

Speed 1/min: 550
Del.quantity : 3,5...4,5
1000H.: (2,5...5,5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del.quantity cm3/: -
ind. 1000H: 34,0

2nd speed 1/min: 300
Del.quantity cm3/: -
max. 1000H : 64,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,2...5,5
MS mm : 1,3...1,5
SVS max. mm : 3,0
XK mm : 18,9...20,9
XL mm : 12,2...15,6

Remarks:

Setting of residual delivery.

Idle setting (LFG) according to
VDT-I-460/135.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6U
Edition : 2.11.87
replaces : 4.84
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2100 R48
Type number : 0 460 494 039

Customer-specific information
Customer : VW

Engine : EA 162/1,6L

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 3,3...3,7

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,8...5,4

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 33,0...34,0
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 415
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,0
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2300
Del.quantity cm3/
1000H.: 12,5...16,5

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 3000
TD travel mm: 1,4...2,2
mm: (1,1...2,5)

2nd speed 1/min: 1500
TD travel mm: 3,3...3,7
mm: (2,8...4,2)

3rd speed 1/min: 2100
TD travel mm: 5,4...6,2
mm: (5,1...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 2,6...3,2

2nd speed 1/min: 1500
Supply-pump
pressure bar: 4,8...5,4

3rd speed 1/min: 2100
Supply-pump
pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41...111
quantity cm3/10s: (26...126)

2nd speed 1/min: 2100
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2450
Del.quantity cm3/: 0...6,0
1000H.: -
2nd speed 1/min: 2300
Del.quantity cm3/: 12,5...16,5
1000H.: (10,5...18,5)
3rd speed 1/min: 2200
Del.quantity cm3/: 20,0...30,0
1000H.: (19,0...31,0)
4th speed 1/min: 2100
Del.quantity cm3/: 28,0...30,0
1000H.: (26,8...31,2)
5th speed 1/min: 1500
Del.quantity cm3/: 33,0...34,0
1000H.: (31,3...35,7)
6th speed 1/min: 600
Del.quantity cm3/: 21,5...24,5
1000H.: (20,0...26,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 415
ELAB volt: -
Del.quantity cm3/: 0...3,0
max. 1000H.: -

Idle delivery:

Mfg. date: until : -
1st speed 1/min: 415
Del.quantity cm3/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 650
Del.quantity cm3/: 0,0...6,0
1000H.: -
3rd speed 1/min: 1200
Del.quantity cm3/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Del.quantity cm3/: -
ind. 1000H: 17,0
2nd speed 1/min: 500
Del.quantity cm3/: -
max. 1000H : 23,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

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Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...5,9
MS	mm	: 1,3...1,5
SVS max.	mm	: 4,8
FH	mm	: 1,8...2,4
XK	mm	: 18,6...20,6
XL	mm	: 7,5...10,8

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 1,6A
Edition : 3.11.87
replaces : 2.10.87
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2400 R125
Type number : O 460 494 122

Customer-specific information
Customer : FORD

Engine : 1,6L IDI

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 5,0...5,4
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min : 1750
Del.quantity cm3/
1000H.: 28,8...29,8
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/: 2,5
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 440
Del.quantity cm3/
1000H.: 7,0...11,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/: 2,0
1000H.: (2,0)

Full-load speed regulation:

Speed 1/min: 2675
Del.quantity cm3/
1000H.: 7,5...13,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 50,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 600
TD travel mm: 2,2...4,2
mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 800
TD travel mm: 1,6...2,4
mm: (1,3...2,7)
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1500
TD travel mm: 5,0...5,4
mm: (4,5...5,9)
KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 2000
TD travel mm: 7,6...8,4
mm: (7,3...8,7)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3,1...3,7
KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1500
Supply-pump
pressure bar: 5,3...5,9
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6,6...7,2
KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 0,0...2,0
1000H.: -
2nd speed 1/min: 2675
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 7,5...13,5
1000H.: (6,5...14,5)
3rd speed 1/min: 2550
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 18,5...26,5
1000H.: (17,5...27,5)
4th speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 27,2...29,2
1000H.: (26,0...30,4)
5th speed 1/min: 1750
KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 28,8...29,8
1000H.: (27,1...31,5)
6th speed 1/min: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 24,1...27,1
1000H.: (23,4...27,8)
7th speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 23,0...26,0
1000H.: (21,5...27,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 440
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 440
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 7,0...11,0
1000H.: (5,0...13,0)

2nd speed 1/min: 475
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 2,5...7,5
1000H.: (0,5...9,5)

3rd speed 1/min: 570
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 0,0...3,6
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: -
ind. 1000H: 30,0

2nd speed 1/min: 500
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: -
max. 1000H : 30,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

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Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 1,6...1,85
SVS max.	mm	: 4,0
XK	mm	: 23,3...25,3
XL	mm	: 10,4...13,8

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 K2
Edition : 04.11.87
replaces :
Calibrating oil : ISO-4113
Injection pump : VE 4/ 9F2300 R162-4
Type number : 0 460 494 124
Customer-specific information
Customer : PEUGEOT
Engine : XUD9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50
Inlet press., bar : 0,35
Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 4,0...4,4

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm3/
1000H.: 29,5...30,5
Dispersion cm3/: 2,5
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 7,0...9,0
Dispersion cm3/: 2,5
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 550
Del.quantity cm3/
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2400
Del.quantity cm3/
1000H.: 20,0...26,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 24,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 800
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 1250
TD travel mm: 4,0...4,4
mm: (3,5...4,9)
3rd speed 1/min: 2000
TD travel mm: 7,6...8,4
mm: (7,3...8,7)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 3,0...3,6
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4,2...4,8
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2250
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2650
Del. quantity cm3/: 0,0...7,0
1000H.: -
2nd speed 1/min: 2500
Del. quantity cm3/: 10,0...16,0
1000H.: (9,0...17,0)
3rd speed 1/min: 2400
Del. quantity cm3/: 20,0...26,0
1000H.: (19,0...27,0)
4th speed 1/min: 2250
Del. quantity cm3/: 30,7...32,7
1000H.: (29,7...33,7)
5th speed 1/min: 2000
Del. quantity cm3/: 31,6...33,6
1000H.: (30,6...34,6)
6th speed 1/min: 1250
Del. quantity cm3/: 29,5...30,5
1000H.: (28,0...32,0)
7th speed 1/min: 800
Del. quantity cm3/: 29,7...32,3
1000H.: (29,0...33,0)
8th speed 1/min: 500
Del. quantity cm3/: 30,0...33,0
1000H.: (29,5...33,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del. quantity cm3/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm3/: 7,0...9,0
1000H.: (4,0...12,0)

High Idle:

Speed 1/min: 470
Del. quantity cm3/: 7,0...9,0
1000H.: (4,0...12,0)

Residual:

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Speed 1/min: 550
Del. quantity : 2,5...3,5
1000H.: (1,0...5,0)

Arrangement of drivers on engine-
speed lever for exhaust-gas-
recirculation valve linkage (guage)

1st speed 1/min: 1125
Del. quantity cm3/: 17,0...19,0
1000H.: (15,5...20,5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm3/: -
ind. 1000H: 20,0

2nd speed 1/min: 300
Del. quantity cm3/: -
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,7...6,0
MS mm : 1,3...1,55
XK mm : 17,0...19,0
XL mm : 14,2...17,6

Remarks:

Setting of residual delivery.

Idle setting (LFG) according to
VDT-I-460/135.

For adjustment of switching point
(EGR valve), include 10.8 mm spacer
at third fuel-delivery step.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6 V9
Edition : 03.11.87
replaces : 09.85
Calibrating oil : ISO-4113
Injection pump : VE 4/ 9F2400 R138
Type number : 0 460 494 131

Customer-specific information
Customer : VW

Engine : 086-1,6L.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 2,9...3,3

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,3...4,9

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 31,5...32,5
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 475
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,0
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2600
Del.quantity cm3/
1000H.: 12,0...16,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 1000
TD travel mm: 1,3...2,1
mm: (1,0...2,4)
2nd speed 1/min: 1500
TD travel mm: 2,9...3,3
mm: (2,4...3,8)
3rd speed 1/min: 2400
TD travel mm: 6,1...6,9
mm: (5,8...7,2)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 2,2...2,8
2nd speed 1/min: 1500
Supply-pump
pressure bar: 4,3...4,9
3rd speed 1/min: 2400
Supply-pump
pressure bar: 6,4...7,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2400
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Del.quantity cm3/: 0,0...3,0
1000H.: -
2nd speed 1/min: 2600
Del.quantity cm3/: 12,0...16,0
1000H.: (10,0...18,0)
3rd speed 1/min: 2525
Del.quantity cm3/: 18,5...28,5
1000H.: (17,5...29,5)
4th speed 1/min: 2400
Del.quantity cm3/: 26,8...28,8
1000H.: (25,6...30,0)
5th speed 1/min: 1500
Del.quantity cm3/: 31,5...32,5
1000H.: (29,8...34,2)
6th speed 1/min: 600
Del.quantity cm3/: 20,2...23,2
1000H.: (18,7...24,7)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 475
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 475
Del.quantity cm3/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 650
Del.quantity cm3/: 0,0...7,6
1000H.: -
3rd speed 1/min: 1200
Del.quantity cm3/: 0,0...5,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Del.quantity cm3/: -
ind. 1000H: 18,0

2nd speed 1/min: 500
Del.quantity cm3/: -
max. 1000H : 23,5

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 1,3...1,5
SVS max.	mm	: 2,7
FH	mm	: 1,8...2,4
XK	mm	: 17,0...19,0
XL	mm	: 9,8...13,2

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6 W2
Edition : 03.11.87
replaces : 09.85
Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2400 R138-1
Type number : 0 460 494 140

Customer-specific information
Customer : VW

Engine : 086-1,6L.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 2,9...3,3

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,3...4,9

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 31,5...32,5
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 450
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,0
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2600
Del.quantity cm3/
1000H.: 12,0...16,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Inspection-pump test specifications Test specifications in parentheses

1st speed 1/min: 1000
TD travel mm: 1,3...2,1
mm: (1,0...2,4)
2nd speed 1/min: 1500
TD travel mm: 2,9...3,3
mm: (2,4...3,8)
3rd speed 1/min: 2400
TD travel mm: 6,1...6,9
mm: (5,8...7,2)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure bar: 2,2...2,8
2nd speed 1/min: 1500
Supply-pump pressure bar: 4,3...4,9
3rd speed 1/min: 2400
Supply-pump pressure bar: 6,4...7,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2400
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Del.quantity cm3/: 0,0...3,0
1000H.: -
2nd speed 1/min: 2600
Del.quantity cm3/: 12,0...16,0
1000H.: (10,0...18,0)
3rd speed 1/min: 2525
Del.quantity cm3/: 18,5...28,5
1000H.: (17,5...29,5)
4th speed 1/min: 2400
Del.quantity cm3/: 26,8...28,8
1000H.: (25,6...30,0)
5th speed 1/min: 1500
Del.quantity cm3/: 31,5...32,5
1000H.: (29,8...34,2)
6th speed 1/min: 600
Del.quantity cm3/: 20,2...23,2
1000H.: (18,7...24,7)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 2400
Del.quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 450
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 450
Del.quantity cm3/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 650
Del.quantity cm3/: 0,0...5,0
1000H.: -
3rd speed 1/min: 1200
Del.quantity cm3/: 0,0...7,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Del.quantity cm3/: -
ind. 1000H.: 18,0

2nd speed 1/min: 500
Del.quantity cm3/: -
max. 1000H.: 23,5

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 1,3...1,5
SVS max.	mm	: 2,7
FH	mm	: 1,8...2,4

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6 E
Edition : 04.11.87
replaces : 12.83
Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2000 R160
Type number : O 460 494 149

Customer-specific information
Customer : VW

Engine : 068.5T-1,6L.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 3,2...3,6

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 4,6...5,2

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm3/
1000H.: 42,5...43,5
Dispersion cm3/ : 2,5
1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 600
Del. quantity cm3/
1000H.: 24,5...25,5

Low-idle speed regulation:

Speed 1/min: 475
Charge press. hPa: -
Del. quantity cm3/
1000H.: 6,0...10,0

Full-load speed regulation:

Speed 1/min: 2110
Charge press. hPa: 750
Del. quantity cm3/
1000H.: 10,0...14,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del. quantity : -
mind cm3/1000H.: 35,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 1000
Charge press. hPa: 750
TD travel mm: 1,2...2,0
mm: (0,9...2,3)
2nd speed 1/min: 1500
Charge press. hPa: 750
TD travel mm: 3,2...3,6
mm: (2,7...4,1)
3rd speed 1/min: 1980
Charge press. hPa: 750
TD travel mm: 5,2...6,0
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 750
Supply-pump
pressure bar: 2,5...3,1
2nd speed 1/min: 1500

Charge press. hPa: 750
Supply-pump
pressure bar: 4,6...5,2
3rd speed 1/min: 1980
Charge press. hPa: 750
Supply-pump
pressure bar: 5,7...6,3

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 1980
Charge press. hPa: 750
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1000
Charge-air pressure-setting
point hPa: 300
LDA stroke mm: 4,5
Del. quantity cm3/: 33,5...34,5
1000H.: (31,0...37,0)
2nd speed 1/min: 2150
Charge press. hPa: 750
Del. quantity cm3/: 0,0...6,0
1000H.: -
3rd speed 1/min: 2130
Charge press. hPa: 750
Del. quantity cm3/: 0,0...12,00
1000H.: -
4th speed 1/min: 2100
Charge press. hPa: 750
Del. quantity cm3/: 5,0...29,0
1000H.: -
5th speed 1/min: 2090
Charge press. hPa: 750
Del. quantity cm3/: 12,0...36,0
1000H.: -
6th speed 1/min: 2060
Charge press. hPa: 750
Del. quantity cm3/: 29,0...53,0
1000H.: -
7th speed 1/min: 1980
Charge press. hPa: 750
Del. quantity cm3/: 40,0...42,0
1000H.: (38,8...43,2)
8th speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm3/: 42,5...43,5
1000H.: (40,8...45,2)
9th speed 1/min: 1000
Charge press. hPa: 300
Del. quantity cm3/: 33,5...34,5
1000H.: (31,0...37,0)
10th speed 1/min: 600

Charge press. hPa: -
Del.quantity cm3/: 24,5...25,5
1000H: (22,0...28,0)
11th speed 1/min: 600
Charge press. hPa: 750
Del.quantity cm3/: 31,0...34,0
1000H: (29,5...35,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 475
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 475
Del.quantity cm3/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 600
Del.quantity cm3/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350
Del.quantity cm3/: -
ind. 1000H: 32,0

2nd speed 1/min: 450
Del.quantity cm3/: -
max. 1000H : 18,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,7...6,0
MS mm : 1,2...1,45

Remarks:

:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 1,6 A1
Edition : 03.11.87
replaces : 03.10.86
Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F1800 R125-1
Type number : 0 460 494 168

Customer-specific information
Customer : FORD

Engine : 1,6L IDI IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 5,0...5,4
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min : 1000
Del.quantity cm3/
1000H.: 25,1...26,1
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 440
Del.quantity cm3/
1000H.: 7,0...11,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/: 2,0
1000H.: -

Full-load speed regulation:

Speed 1/min: 1850
Del.quantity cm3/
1000H.: 20,0...26,0
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 50,0
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 600
TD travel mm: 2,2...4,2
mm: -

KSB solenoid-operated
valve volt: -
2nd speed 1/min: 800
TD travel mm: 1,6...2,4
mm: (1,3...2,7)

KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1500
TD travel mm: 5,0...5,4
mm: (4,5...5,9)

KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 1750

TD travel mm: 6,3...7,1
mm: (6,0...7,4)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 600

Supply-pump pressure bar: 3,1...3,7

KSB solenoid-operated
valve volt: 12,0

2nd speed 1/min: 1500

Supply-pump pressure bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

3rd speed 1/min: 1750

Supply-pump pressure bar: 5,9...6,5

KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 600

KSB solenoid-operated
valve volt: 12,0

Overflow : 41...83
quantity cm3/10s: (26...98)

2nd speed 1/min: 1750

KSB solenoid-operated
valve volt: 12,0

Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2050

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 0,0...2,0
1000H.: -

2nd speed 1/min: 1910

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 7,5...15,5
1000H.: (6,5...16,5)

3rd speed 1/min: 1850

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 20,0...26,0
1000H.: (19,0...27,0)

4th speed 1/min: 1750

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 28,3...30,3
1000H.: (27,1...31,5)

5th speed 1/min: 1000

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 25,1...26,1
1000H.: (23,4...27,8)

6th speed 1/min: 600

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 23,0...26,0
1000H.: (21,5...27,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 440

ELAB volt: -

Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 440

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 7,0...11,0
1000H.: (5,0...13,0)

2nd speed 1/min: 475

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 2,5...7,5
1000H.: (0,5...9,5)

3rd speed 1/min: 570

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 0,0...3,6
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: -
ind. 1000H: 30,0

2nd speed 1/min: 500

KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: -
max. 1000H : 30,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	3,2...3,4
KF	mm	:	5,7...6,0
MS	mm	:	1,6...1,85
SVS max.	mm	:	4,0
XK	mm	:	23,3...25,3
XL	mm	:	10,4...13,8

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 1,6 E
Edition : 28.08.87
replaces : 02.87
Calibrating oil : ISO 4113
Injection pump : VE 4/ 9F2300 R215
Type number : 0 460 494 174

Customer-specific information
Customer : OPEL

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50
Inlet press., bar : 0,35
Calibrating nozzle-holder
assembly : 1 680 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery

Indicator setting:
Piston stroke mm: 0,90
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 3,7...4,1

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,9...5,5

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 31,3...32,3
Dispersion cm3/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 425
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,5
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2575
Del.quantity cm3/
1000H: 17,0...23,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 1000
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 1500
TD travel mm: -
mm: (3,2...4,6)
3rd speed 1/min: 2300
TD travel mm: 6,9...7,7
mm: (6,6...8,0)

Supply-pump pressure characteristic:

1st speed 1/min: 400
Supply-pump
pressure bar: 1,7...2,3
2nd speed 1/min: 1000
Supply-pump
pressure bar: 3,5...4,1
3rd speed 1/min: 2300
Supply-pump
pressure bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 600

Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2300
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
Del. quantity cm3/: -
1000H.: 0,0...5,0
2nd speed 1/min: 2735
Del. quantity cm3/: 5,0...11,0
1000H.: (4,0...12,0)
3rd speed 1/min: 2575
Del. quantity cm3/: -
1000H.: (16,0...24,0)
4th speed 1/min: 2300
Del. quantity cm3/: 29,2...31,8
1000H.: (28,2...32,8)
5th speed 1/min: 1500
Del. quantity cm3/: 31,3...32,3
1000H.: (29,5...34,1)
6th speed 1/min: 600
Del. quantity cm3/: 23,8...26,8
1000H.: (22,3...28,3)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

Mfg. date: until : -
1st speed 1/min: 425
Del. quantity cm3/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 500
Del. quantity cm3/: 2,0...7,0
1000H.: (0,5...8,5)
3rd speed 1/min: 1200
Del. quantity cm3/: 0,0...2,0
1000H.: -
4th speed 1/min: 1800
Del. quantity cm3/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del. quantity cm3/: -
ind. 1000H: 30,0

2nd speed 1/min: 400

Del. quantity cm3/: -
max. 1000H : 35,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 0,9...1,1
XK	mm	: 17,0...19,0
XL	mm	: 10,6...14,0

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 1,6 E1
Edition : 28.08.87
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R215-1
Type number : 0 460 494 175

Customer-specific information
Customer : OPEL

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 680 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery

Indicator setting:
Piston stroke mm: 0.90
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 3,7...4,1

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,9...5,5

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 31,3...32,3
Dispersion cm3/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 425
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,5
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2575
Del.quantity cm3/
1000H.: 17,0...23,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 1000
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 1500
TD travel mm: 3,7...4,1
mm: (3,2...4,6)
3rd speed 1/min: 2300
TD travel mm: 6,9...7,7
mm: (6,6...8,0)

Supply-pump pressure characteristic:

1st speed 1/min: 400
Supply-pump pressure bar: 1,7...2,3
2nd speed 1/min: 1000
Supply-pump pressure bar: 3,5...4,1
3rd speed 1/min: 2300
Supply-pump pressure bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 600

Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2300
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
Del.quantity cm3/: -
1000H.: 0,0...5,0
2nd speed 1/min: 2735
Del.quantity cm3/: 5,0...11,0
1000H.: (4,0...12,0)
3rd speed 1/min: 2575
Del.quantity cm3/: 17,0...23,0
1000H.: (16,0...24,0)
4th speed 1/min: 2300
Del.quantity cm3/: 29,2...31,8
1000H.: (28,2...32,8)
5th speed 1/min: 1500
Del.quantity cm3/: 31,3...32,3
1000H.: (29,5...34,1)
6th speed 1/min: 600
Del.quantity cm3/: 23,8...26,8
1000H.: (22,3...28,3)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

Mfg. date: until : -
1st speed 1/min: 425
Del.quantity cm3/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 500
Del.quantity cm3/: 2,0...7,0
1000H.: (1,0...8,0)
3rd speed 1/min: 1200
Del.quantity cm3/: 0,0...2,0
1000H.: -
4th speed 1/min: 1800
Del.quantity cm3/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del.quantity cm3/: -
ind. 1000H.: 30,0
2nd speed 1/min: 400

Del.quantity cm3/: -
max. 1000H : 35,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 0,9...1,1
XK	mm	: 18,7...20,7
XL	mm	: 10,1...13,5

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet :
Edition : 28.08.87
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R215-2
Type number : O 460 494 176

Customer-specific information
Customer : OPEL

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 680 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery

Indicator setting:
Piston stroke mm: 0.90
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 3,7...4,1

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,9...5,5

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 31,3...32,3
Dispersion cm3/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 425
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,5
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2575
Del.quantity cm3/
1000H.: 17,0...23,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 40,0

Inspection-pump test specifications Test specifications in parentheses

1st speed 1/min: 1000
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 1500
TD travel mm: -
mm: (3,2...4,6)
3rd speed 1/min: 2300
TD travel mm: 6,9...7,7
mm: (6,6...8,0)

Supply-pump pressure characteristic:

1st speed 1/min: 400
Supply-pump pressure bar: 1,7...2,3
2nd speed 1/min: 1000
Supply-pump pressure bar: 3,5...4,1
3rd speed 1/min: 2300
Supply-pump pressure bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 55...138
quantity cm3/10s: (40...153)
2nd speed 1/min: 2300
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
Del.quantity cm3/: -
1000H.: 0,0...5,0
2nd speed 1/min: 2735
Del.quantity cm3/: 6,5...13,5
1000H.: (6,0...14,0)
3rd speed 1/min: 2575
Del.quantity cm3/: -
1000H.: (16,0...24,0)
4th speed 1/min: 2300
Del.quantity cm3/: 29,25...31,75
1000H.: (28,3...32,7)
5th speed 1/min: 1500
Del.quantity cm3/: -
1000H.: (29,6...34,0)
6th speed 1/min: 600
Del.quantity cm3/: 23,8...26,8
1000H.: (22,3...28,3)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 2300
Del.quantity cm3/: -
1000H.: -

Idle delivery:

Mfg. date: until : -
1st speed 1/min: 425
Del.quantity cm3/: -
1000H.: (4,0...12,0)
2nd speed 1/min: 500
Del.quantity cm3/: 2,0...7,0
1000H.: (0,5...8,5)
3rd speed 1/min: 1200
Del.quantity cm3/: 0,0...2,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del.quantity cm3/: -
in l. 1000H: 30,0
2nd speed 1/min: 400
Del.quantity cm3/: -
max. 1000H : 30,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	3,2...3,4
KF	mm	:	5,7...6,0
MS	mm	:	0,9...1,1
SVS max.	mm	:	3,9
XK	mm	:	17,0...20,0
XL	mm	:	10,6...14,0

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 1,6 E3
Edition : 28.08.87
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R215-3
Type number : O 460 494 177

Customer-specific information
Customer : OPEL

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 680 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery

Indicator setting:
Piston stroke mm: 0.90
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 3,7...4,1

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,9...5,5

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 31,3...32,3
Dispersion cm3/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 425
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,5
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2575
Del.quantity cm3/
1000H.: 17,0...23,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 40,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 1000
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 1500
TD travel mm: -
mm: (3,2...4,6)
3rd speed 1/min: 2300
TD travel mm: 6,9...7,7
mm: (6,6...8,0)

Supply-pump pressure characteristic:

1st speed 1/min: 400
Supply-pump pressure bar: 1,7...2,3
2nd speed 1/min: 1000
Supply-pump pressure bar: 3,5...4,1
3rd speed 1/min: 2300
Supply-pump pressure bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 500

Overflow : 55...138
quantity cm3/10s: (40...153)
2nd speed 1/min: 2300
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
Del.quantity cm3/: -
1000H.: 0,0...5,0
2nd speed 1/min: 2735
Del.quantity cm3/: 6,5...13,5
1000H.: (6,0...14,0)
3rd speed 1/min: 2575
Del.quantity cm3/: -
1000H.: (16,0...24,0)
4th speed 1/min: 2300
Del.quantity cm3/: 29,25...31,75
1000H.: (28,3...32,7)
5th speed 1/min: 1500
Del.quantity cm3/: -
1000H.: (29,6...34,0)
6th speed 1/min: 600
Del.quantity cm3/: 23,8...26,8
1000H.: (22,3...28,3)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 2300
Del.quantity cm3/: -
1000H.: -

Idle delivery:

Mfg. date: until : -
1st speed 1/min: 425
Del.quantity cm3/: -
1000H.: (4,0...12,0)
2nd speed 1/min: 500
Del.quantity cm3/: 2,0...7,0
1000H.: (0,5...8,5)
3rd speed 1/min: 1200
Del.quantity cm3/: 0,0...2,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del.quantity cm3/: -
ind. 1000H: 30,0
2nd speed 1/min: 400
Del.quantity cm3/: -
max. 1000H : 30,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 0,9...1,1
XK	mm	: 18,7...20,7
XL	mm	: 10,1...13,5

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 1,6 A2
Edition : 03.11.87
replaces : 03.10.86
Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2400 R125-2
Type number : 0 460 494 186

Customer-specific information
Customer : FORD

Engine : 1,6 L. IDI IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 4,3...4,7
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min: 1750
Del.quantity cm3/
1000H.: 28,8...29,8
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 440
Del.quantity cm3/
1000H.: 7,0...11,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/: 2,0
1000H.: -

Full-load speed regulation:

Speed 1/min: 2675
Del.quantity cm3/
1000H.: 7,5...13,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 50,0
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 600
TD travel mm: 2,2...4,2
mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
TD travel mm: 1,3...2,1
mm: (1,0...2,4)
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1500
TD travel mm: 4,3...4,7
mm: (3,8...5,2)
KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 2000

TD travel mm: 6,8...7,6
mm: (6,5...7,9)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3,1...3,7
KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1500
Supply-pump
pressure bar: 5,3...5,9
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6,6...7,2
KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 0,0...2,0
1000H.: -
2nd speed 1/min: 2675
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 7,5...13,5
1000H.: (6,5...14,5)
3rd speed 1/min: 2550
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 18,5...26,5
1000H.: (17,5...27,5)
4th speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 27,2...29,2
1000H.: (26,0...30,4)
5th speed 1/min: 1750

KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 28,8...29,8
1000H.: (27,1...31,5)
6th speed 1/min: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 24,1...27,1
1000H.: (23,4...27,8)
7th speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 23,0...26,0
1000H.: (21,5...27,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 440
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 440
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 7,0...11,0
1000H.: (5,0...13,0)
2nd speed 1/min: 475
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 2,5...7,5
1000H.: (0,5...9,5)
3rd speed 1/min: 570
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 0,0...3,6
1000H.: -

Arrangement of drivers on engine-
speed lever for exhaust-gas-
recirculation valve linkage (guage)

1st speed 1/min: 1100
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 10,6...11,6
1000H.: 9,1...13,1

Automatic starting fuel delivery:

1st speed 1/min: 400
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: -
ind. 1000H: 30,0

2nd speed 1/min: 500
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: -
max. 1000H : 30,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,7...6,0
MS mm : 1,6...1,85
SVS max. mm : 3,4

For adjustment of switching point
(EGR valve), include 12.0 mm spacer
at third fuel-delivery stop.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 D
Edition : 04.11.87
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE 4/ 9F2300 R162-1
Type number : O 460 494 195
Customer-specific information
Customer : PEUGEOT
Engine : XUD9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50
Inlet press., bar : 0,35
Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 3,2...3,6

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 3,9...4,5

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm3/
1000H.: 29,5...30,5
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 8,5...10,5
Dispersion cm3/: 2,0
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 550
Del.quantity cm3/
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2400
Del.quantity cm3/
1000H.: 20,0...26,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 44,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 800
TD travel mm: 0,7...1,5
mm: (0,4...1,8)
2nd speed 1/min: 1250
TD travel mm: 3,2...3,6
mm: (2,7...4,1)
3rd speed 1/min: 2000
TD travel mm: 7,5...8,3
mm: (7,2...8,6)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 2,6...3,2
2nd speed 1/min: 1250
Supply-pump
pressure bar: 3,9...4,5
3rd speed 1/min: 2000
Supply-pump
pressure bar: 5,9...6,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2300
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2690
Del.quantity cm3/: 0,0...7,0
1000H.: -
2nd speed 1/min: 2540
Del.quantity cm3/: 11,5...17,5
1000H.: (10,5...18,5)
3rd speed 1/min: 2440
Del.quantity cm3/: 20,0...26,0
1000H.: (19,0...27,0)
4th speed 1/min: 2250
Del.quantity cm3/: 29,8...31,8
1000H.: (28,8...32,8)
5th speed 1/min: 2000
Del.quantity cm3/: 30,6...32,6
1000H.: (29,6...33,6)
6th speed 1/min: 1250
Del.quantity cm3/: 29,5...30,5
1000H.: (28,0...32,0)
7th speed 1/min: 800
Del.quantity cm3/: 30,7...33,3
1000H.: (30,0...34,0)
8th speed 1/min: 500
Del.quantity cm3/: 29,5...32,5
1000H.: (29,0...33,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del.quantity cm3/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm3/: 8,5...10,5
1000H.: (5,5...13,5)

High Idle:

Speed 1/min: 470
Del.quantity cm3/: 8,0...10,0
1000H.: (5,0...13,0)

Residual:

C05

Speed 1/min: 550
Del.quantity : 2,5...3,5
1000H.: (1,0...5,0)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del.quantity cm3/: -
ind. 1000H: 20,0

2nd speed 1/min: 300
Del.quantity cm3/: -
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,7...6,0
MS mm : 1,4...1,55
SVS max. mm : 3,0
XK mm : 17,0...19,0
XL mm : 11,5...14,9

Remarks:

Setting of residual delivery.

Idle setting (LFG) according to
VDT-I-460/135.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 K1
 Edition : 04.11.87
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE 4/ 9F2300 R162-2
 Type number : 0 460 494 215
 Customer-specific information
 Customer : PEUGEOT
 Engine : XUD9

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50
 Inlet press., bar : 0,35
 Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 450

Start of delivery
 Prestroke mm : -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
 Setting value mm: 4,0...4,4

Supply-pump pressure:

Speed 1/min: 1250
 Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 1250
 Del.quantity cm3/
 1000H.: 29,5...30,5
 Dispersion cm3/: 2,5
 1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 375
 Del.quantity cm3/
 1000H.: 7,0...9,0
 Dispersion cm3/: 2,5
 1000H.: (3,0)
 Residual-Delivery Setting
 Speed 1/min: 550
 Del.quantity cm3/
 1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2400
 Del.quantity cm3/
 1000H.: 20,0...26,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm3/1000H.: 24,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
 Test specifications in parentheses

1st speed 1/min: 800
 TD travel mm: 1,5...2,3
 mm: (1,2...2,6)
 2nd speed 1/min: 1250
 TD travel mm: 4,0...4,4
 mm: (3,5...4,9)
 3rd speed 1/min: 2000
 TD travel mm: 7,6...8,4
 mm: (7,3...8,7)

Supply-pump pressure characteristic:

1st speed 1/min: 800
 Supply-pump
 pressure bar: 3,0...3,6
 2nd speed 1/min: 1250
 Supply-pump
 pressure bar: 4,2...4,8
 3rd speed 1/min: 2000
 Supply-pump
 pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2250
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2650
Del. quantity cm3/: 0,0...7,0
1000H.: -
2nd speed 1/min: 2500
Del. quantity cm3/: 10,0...16,0
1000H.: (9,0...17,0)
3rd speed 1/min: 2400
Del. quantity cm3/: 20,0...26,0
1000H.: (19,0...27,0)
4th speed 1/min: 2250
Del. quantity cm3/: 30,7...32,7
1000H.: (29,7...33,7)
5th speed 1/min: 2000
Del. quantity cm3/: 31,6...33,6
1000H.: (30,6...34,6)
6th speed 1/min: 1250
Del. quantity cm3/: 29,5...30,5
1000H.: (28,0...32,0)
7th speed 1/min: 800
Del. quantity cm3/: 29,7...32,3
1000H.: (29,0...33,0)
8th speed 1/min: 500
Del. quantity cm3/: 30,0...33,0
1000H.: (29,5...33,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del. quantity cm3/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm3/: 7,0...9,0
1000H.: (4,0...12,0)

High Idle:

Speed 1/min: 470
Del. quantity cm3/: 7,0...9,0
1000H.: (4,0...12,0)

Residual:

Speed 1/min: 550
Del. quantity : 2,5...3,5
1000H.: (1,0...5,0)

Arrangement of drivers on engine-
speed lever for exhaust-gas-
recirculation valve linkage (guage)

1st speed 1/min: 1125
Del. quantity cm3/: 17,0...19,0
1000H.: (15,5...20,5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm3/: -
ind. 1000H: 20,0

2nd speed 1/min: 300
Del. quantity cm3/: -
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 1,3...1,55
XK	mm	: 17,0...19,0
XL	mm	: 14,2...17,6

Remarks:

:

Setting of residual delivery.

Idle setting (LFG) according to
VDT-1-460/135.

For adjustment of switching point
(EGR valve), include 10.8 mm spacer
at third fuel-delivery stop.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 K
Edition : 04.11.87
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE 4/ 9F2300 R162-3
Type number : 0 460 494 223
Customer-specific information
Customer : PEUGEOT
Engine : XUD9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50
Inlet press., bar : 0,35
Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 3,2...3,6

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 3,9...4,5

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm3/
1000H.: 29,5...30,5
Dispersion cm3/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 8,5...10,5
Dispersion cm3/: 2,5
1000H.: (3,5)
Residual-Delivery Setting
Speed 1/min: 550
Del.quantity cm3/
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2440
Del.quantity cm3/
1000H.: 20,0...26,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 24,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 800
TD travel mm: 0,7...1,5
mm: (0,4...1,8)
2nd speed 1/min: 1250
TD travel mm: 3,2...3,6
mm: (2,7...4,1)
3rd speed 1/min: 2000
TD travel mm: 7,5...8,3
mm: (7,2...8,6)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 2,6...3,2
2nd speed 1/min: 1250
Supply-pump
pressure bar: 3,9...4,5
3rd speed 1/min: 2000
Supply-pump
pressure bar: 5,9...6,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2300
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2690
Del.quantity cm3/: 0,0...7,0
1000H.: -
2nd speed 1/min: 2540
Del.quantity cm3/: 11,5...17,5
1000H.: (10,5...18,5)
3rd speed 1/min: 2440
Del.quantity cm3/: 20,0...26,0
1000H.: (19,0...27,0)
4th speed 1/min: 2250
Del.quantity cm3/: 29,8...31,8
1000H.: (28,8...32,8)
5th speed 1/min: 2000
Del.quantity cm3/: 30,6...32,6
1000H.: (29,6...33,6)
6th speed 1/min: 1250
Del.quantity cm3/: 29,5...30,5
1000H.: (28,0...32,0)
7th speed 1/min: 800
Del.quantity cm3/: 30,7...33,3
1000H.: (30,0...34,0)
8th speed 1/min: 500
Del.quantity cm3/: 29,5...32,5
1000H.: (29,0...33,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del.quantity cm3/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm3/: 8,5...10,5
1000H.: (5,5...13,5)

High Idle:

Speed 1/min: 470
Del.quantity cm3/: 8,0...10,0
1000H.: (5,0...13,0)

Residual:

C09

Speed 1/min: 550
Del.quantity : 2,5...3,5
1000H.: (1,0...5,0)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del.quantity cm3/: -
ind. 1000H.: 20,0

2nd speed 1/min: 300
Del.quantity cm3/: -
max. 1000H.: 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 1,4...1,55
SVS max.	mm	: 3,0
XK	mm	: 17,0...19,0
XL	mm	: 11,5...14,9

Remarks:

:

Setting of residual delivery.

Idle setting (LFG) according to
VDT-I-460/135.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 1 G 32
Edition : 02.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 400 463 155
Injection pump
Pump designation : PES3A80D410/3RS1350
EP type number : 0 410 483 023
Governor
Governor design. : RSV325...1175A8C2223
-1L
Governer no. : 0 420 232 483

Customer-spec. information
Customer : KHD

Engine : F3L912

1st version kW : 38.0
Speed 1/min: 2350

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 3- 2

SD ang. spacing°CS: 0-120-240
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 10.90...11.00

Del.quantity cm³/ : 5.5...5.6

100H.: (5.4...5.8)

Dispersion cm³/ : 0.2

100H.: (0.3)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm³/ : 0.8...1.4

100H.: (0.6...1.5)

Dispersion cm³/ : 0.2

100H.: (0.3)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload
Notch setting x : 5.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Del.quantity cm³/ : 55.5...56.5

1000H.: (54.0...58.0)

Dispersion cm³/ : 2.50

1000H.: (3.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 52...60

Testing:

1st c-rod trav.mm : 9.10

Speed 1/min : 1215...1225

2nd c-rod trav.mm : 4.00

Speed 1/min : 1245...1275

3rd c-rod trav.mm : 4.00
Speed 1/min : 1250...1280
4th speed 1/min : 1425
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 16...24
Setting point w/out aux. spring
Speed 1/min : 325
Contr.-rod trav.mm: 5.5

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 325
C-rod trav.mm : 5.90...6.10
C-rod trav.mm : 2.00
Speed 1/min : 455...585

TORQUE CONTROL

Dimension a mm : 0.85
Torque-control curve - 1st version
1st speed 1/min : 1175
C-rod trav.mm : 10.10...10.20
2nd speed 1/min : 500
C-rod trav.mm : 10.90...11.00
3rd speed 1/min : 1050
C-rod trav.mm : 10.40...10.60

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 1175
Del.quantity cm3/ : 56.0...60.0
1000H.: (54.0...62.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.10
Speed 1/min : 1215...1225

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 100.0...110.0
1000H.: (97.0...113.0)
Contr.-rod trav.mm: 17.00...17.30

Remarks:

: RENAULT

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RAB 9,7 B
Edition : 02.11.87
Superceeded : 14.11.86
Calibrating oil : ISO-4113

Combination no. : 0 400 846 514

Injection pump
Pump designation : PES6A9SD420LS2595
EP type number : 0 410 896 930
Governor
Governor design. : RQ200/1100AB1094-1R
Governor no. : 0 420 201 637

Customer-spec. information
Customer : RABA

Engine : D2356HM6U

1st version kW : 162.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.05)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - ^o : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 11.30...11.40

Del.quantity cm3/ : 11.4...11.6

100H.: (11.2...11.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 200.0

Contr.-rod trav. m: 6.6...6.8

Del.quantity cm3/ : 0.8...1.4

100H.: (0.5...1.6)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 550

Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Del.quantity cm3/ : 114.0...116.0

1000H.: (112.0...118.0)

Dispersion cm3/ : 3.00

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 550

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 10.30

Speed 1/min : 1145...1160

2nd c-rod trav.mm : 4.00

Speed 1/min : 1185...1215

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 200

Contr.-rod trav.mm: 6.5

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.00

Speed 1/min : 200

C-rod trav.mm : 6.40...6.60

C-rod trav.mm : 2.00

Speed 1/min : 290...330

Speed 1/min : 400

C-rod trav.mm max : 1.00

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 11.30...11.40

2nd speed 1/min : 500

C-rod trav.mm : 11.90...12.00

3rd speed 1/min : 750

C-rod trav.mm : 11.80...12.00

4th speed 1/min : 800

C-rod trav.mm : 11.60...11.90

SWITCH-OVER POINT

Speed 1/min : 140 (160)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 500

Del.quantity cm3/ : 0.0...110.0

1000H.: (0.0...112.5)

Speed 1/min : 800

Del.quantity cm3/ : 112.0...118.0

1000H.: (109.5...120.5)

SETTING CONTROL-ROD STOP

Speed 1/min : 500

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.30

Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100

Contr.-rod trav.mm: 17.10...17.50

Remarks:

:

APPLICATION
Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : LIE 8,4 B 1
Edition : 02.11.87
Superceeded : 9.3.87
Calibrating oil : ISO-4113

Combination no. : 0 400 846 562

Injection pump
Pump designation : PES6A100D410RS2687
EP type number : 0 410 806 001
Governor
Governor design. : RQV400...1000AB1231L
Governor no. : 0 420 212 206

Customer-spec. information
Customer : LIEBHERR

Engine : D906T

1st version kW : 170.0
Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 40...45

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
: (2.65...2.85)
Contr.-rod trav.mm: 9.00...12.00

C15

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max. : 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 13.30...13.40

Del.quantity cm3/ : 13.6...13.8

100H.: (13.4...14.0)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 400.0
Contr.-rod trav. m: 6.8...7.0
Del.quantity cm3/ : 1.0...1.6
100H.: (0.7...1.8)
Dispersion cm3/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 440
Sleeve travel mm: 2.10...2.30
2nd speed 1/min: 500
Sleeve travel mm: 3.00...3.50
3rd speed 1/min: 585
Sleeve travel mm: 3.50...4.00
4th speed 1/min: 1045
Sleeve travel mm: 8.10...8.20
5th speed 1/min: 1135
Sleeve travel mm: 9.40...9.70

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1065
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1000
Charge press. hPa : 700

Del.quantity cm3/ : 136.5...138.5
1000H.: (134.5...140.5)
Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 62...70
Testing:
1st c-rod trav.mm : 12.30
Speed 1/min : 1040...1050
2nd c-rod trav.mm : 4.00
Speed 1/min : 1130...1160
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 12...19

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.30
Speed 1/min : 400
C-rod trav.mm : 6.80...7.00
C-rod trav.mm : 2.00

CONSTANT REGULATION

Speed 1/min : 425...530

TORQUE CONTROL

Dimension a mm : -
Torque-control curve - 1st version
1st speed 1/min : 1000
C-rod trav.mm : 13.30...13.40
2nd speed 1/min : 500
C-rod trav.mm : 13.30...13.50

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 13.30...13.40

Measurement

Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 12.10...12.30
2nd pressure hPa : 435
C-rod trav.mm : 12.90...13.00
3rd pressure hPa : 410
C-rod trav.mm : 12.40...12.60

SWITCH-OVER POINT

Speed 1/min : 320 (340)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 100.0...102.0
1000H.: (98.0...104.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 12.30
Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 115.0...125.0
1000H.: (112.0...128.0)
Contr.-rod trav.mm: 19.50...21.00

LOW IDLE

Speed 1/min : 400
Contr.-rod trav.mm: 6.80...7.00
Del.quantity cm3/ : 10.0...16.0
1000H.: (7.5...18.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 V 20
 Edition : 06.11.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 400 846 564
 Injection pump
 Pump designation : PES6A90D41ORS2596
 EP type number : 0 410 896 073
 Governor
 Governor design. : RQV300...1300AB1066-
 SL
 Governor no. : 0 420 212 212
 Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM352A

1st version kW : 122.0
 Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-gil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - ^o : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 12.20...12.30

Del.quantity cm3/ : 7.6...7.7

100H.: (7.4...7.9)

Dispersion cm3/ : 0.3

100H.: (0.5)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.7...8.9

Del.quantity cm3/ : 1.0...1.6

100H.: (0.8...1.8)

Dispersion cm3/ : 0.2

100H.: (-)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 0.80...1.30

2nd speed 1/min: 500

Sleeve travel mm: 2.30...2.80

3rd speed 1/min: 750

Sleeve travel mm: 4.10...4.30

4th speed 1/min: 1500

Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1500

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm3/ : 76.5...77.5

1000H.: (74.5...79.5)

Dispersion cm3/ : 3.00

1000H.: (5.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...64

Testing:

1st c-rod trav.mm : 11.20

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1510...1540

4th speed 1/min : 1650

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 19...27

Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.30

Speed 1/min : 300

C-rod trav.mm : 8.70...8.90

C-rod trav.mm : 2.00

Speed 1/min : 570...630

TORQUE CONTROL

Dimension a mm : ?

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 12.20...12.30

2nd speed 1/min : 800

C-rod trav.mm : 13.30...13.40

3rd speed 1/min : 1075

C-rod trav.mm : 13.00...13.20

4th speed 1/min : 1175

C-rod trav.mm : 12.60...12.90

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 11.90...12.00

2nd pressure hPa : 400

C-rod trav.mm : 12.80...12.90

3rd pressure hPa : 300

C-rod trav.mm : 12.20...12.40

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 800

Del.quantity cm³/ : 78.5...81.5

1000H.: (76.0...84.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm³/ : 52.5...55.5

1000H.: (50.0...58.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.20

Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 73.0...83.0

1000H.: (70.0...86.0)

Contr.-rod trav.mm: 15.40...15.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM 3,1 B 1
 Edition : 02.11.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 400 863 008
 Injection pump
 Pump designation : PES3A90D320/3RS2658
 EP type number : 0 410 893 004
 Governor
 Governor design. : RSV325...1500A2CS05-2R
 Governor no. : 0 420 233 196
 Customer-spec. information
 Customer : MWM

Engine : D226P-3

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.00
 Calibrating nozzle-holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test inj. tubing : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 2- 3

SD ang. spacing^oCS: 0-120-240
Tolerance + - : 0.50 (0.75)

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...0.00
& c-rod tray max. : 21.00
Difference^o CS : 3.50...4.50

BASIC SETTING

1st speed 1/mi: 1500

Contr.-rod trav.mm: 11.20...11.30

Del.quantity cm3/ : 8.9...9.0

100H.: (8.7...9.2)

Dispersion cm3/ : 0.3

100H.: (0.5)

2nd speed 1/min: 325.0
Contr.-rod trav. m: 10.0...10.2
Del.quantity cm3/ : 4.8...5.4
100H.: (4.6...5.6)
Dispersion cm3/ : 0.2
100H.: (0.4)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Contr.-rod travelmm: 0.30...0.70

Governor-spring reload
Notch setting x : 2.50

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1500
Del.quantity cm3/ : 89.5...90.5
1000H.: (87.5...92.5)
Dispersion cm3/ : 3.00
1000H.: (5.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 49...57
Testing:
1st c-rod trav.mm : 10.20
Speed 1/min : 1540...1550
2nd c-rod trav.mm : 4.00

Speed 1/min : 1590...1620
3rd c-rod trav.mm : 4.00
Speed 1/min : 1595...1625
4th speed 1/min : 1765
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 11...19
Setting point w/out aux. spring
Speed 1/min : 325
Contr.-rod trav.mm: 9.6

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 325
C-rod trav.mm : 10.00...10.20
C-rod trav.mm : 2.00
Speed 1/min : 475...535

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1500
C-rod trav.mm : 11.20...11.30
2nd speed 1/min : 500
C-rod trav.mm : 11.20...11.40

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.20
Speed 1/min : 1540...1550

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 115.0
1000H.: (112.0)
Contr.-rod trav.mm: 16.80

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 4.1 C 7
Edition : 02.11.87
Superceeded : 12.9.86
Calibrating oil : ISO-4113
Combination no. : 0 400 864 058
Injection pump
Pump designation : PES4A80D410/3RS2S23
EP type number : 0 410 884 043
Governor
Governor design. : RSV325...1250A8C540-
1L
Governor no. : 0 420 232 355

Customer-spec. information
Customer : KHD

Engine : F4L913

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1250
Contr.-rod trav.mm: 11.60...11.70
Del.quantity cm3/ : 6.8...6.9
100H.: (6.7...7.1)
Dispersion cm3/ : 0.2
100H.: (0.4)
2nd speed 1/min: 325.0
Contr.-rod trav. m: 8.1...8.3
Del.quantity cm3/ : 1.0...1.6
100H.: (0.8...1.7)
Dispersion cm3/ : 0.2
100H.: (0.3)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Cont.-rod travelmm: 0.00...0.70

Governor-spring reload
Notch setting x : 4.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1250
Del.quantity cm3/ : 68.5...69.5
1000H.: (67.0...71.0)
Dispersion cm3/ : 2.50
1000H.: (4.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 53...61

Testing:
1st c-rod trav.mm : 10.60
Speed 1/min : 1290...1300
2nd c-rod trav.mm : 4.00
Speed 1/min : 1320...1350
3rd c-rod trav.mm : 4.00
Speed 1/min : 1355...1385
4th speed 1/min : 1555
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

Setting point w/out aux. spring

Speed 1/min : 325

Contr.-rod trav.mm: 6.5

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 325

C-rod trav.mm : 6.90...7.10

C-rod trav.mm : 2.00

Speed 1/min : 545...605

TORQUE CONTROL

Dimension a mm : 0.50

Torque-control curve - 1st version

1st speed 1/min : 1250

C-rod trav.mm : 11.60...11.70

2nd speed 1/min : 500

C-rod trav.mm : 12.10...12.20

3rd speed 1/min : 965

C-rod trav.mm : 11.80...12.00

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 800

Del.quantity cm3/ : 64.5...66.5

1000H.: (62.5...68.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.60

Speed 1/min : 1290...1300

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 125.0...135.0

1000H.: (122.0...138.0)

Contr.-rod trav.mm: 19.50...21.00

Remarks:

;

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 6,1 A 7
 Edition : 02.11.87
 Superceeded : 13.5.87
 Calibrating oil : ISO-4113
 Combination no. : 0 400 866 120
 Injection pump
 Pump designation : PES6A85D410/3RS2415
 EP type number : 0 410 886 915
 Governor
 Governor design. : RSV325...1150A8C673-1L
 Governor no. : 0 420 232 489

Customer-spec. information
 Customer : KHD

Engine : BF6L913

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 6.8...6.9

100H.: (6.6...7.1)

Dispersion cm3/ : 0.3

100H.: (0.4)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 8.0...8.2

Del.quantity cm3/ : 1.0...1.6

100H.: (0.8...1.8)

Dispersion cm3/ : 0.2

100H.: (0.4)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 4.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm3/ : 68.0...69.0

1000H.: (66.0...71.0)

Dispersion cm3/ : 3.00

1000H.: (4.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 46...54

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1215...1245

3rd c-rod trav.mm : 4.00

Speed 1/min : 1225...1255

4th speed 1/min : 1400

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

Setting point w/out aux. spring

Speed 1/min : 325

Contr.-rod trav.mm: 5.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 325

C-rod trav.mm : 5.40...5.60

C-rod trav.mm : 2.00

Speed 1/min : 490...550

TORQUE CONTROL

Dimension a mm : 0.70

Torque-control curve - 1st version

1st speed 1/min : 1150

C-rod trav.mm : 11.00...11.10

2nd speed 1/min : 500

C-rod trav.mm : 11.70...11.80

3rd speed 1/min : 990

C-rod trav.mm : 11.30...11.50

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00

Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 100.0...110.0

1000H.: (97.0...113.0)

Contr.-rod trav.mm: 16.70...17.30

Remarks:

:

APPLICATION

Installation 2300

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : EIC 3,9 C 1
Edition : 02.11.87
Superceeded : 28.11.86
Calibrating oil : ISO-4113

Combination no. : 0 400 874 239

Injection pump
Pump designation : PES4A90D32ORS2634
EP type number : 0 410 894 026
Governor
Governor design. : RSV300...1050A1C2153
-1R
Governor no. : 0 420 233 193

Customer-spec. information
Customer : EICHER

Engine : EDL4

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 2- 4- 3

SD ang. spacing°CS: 0-90-180-270
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm3/ : 8.1...8.2

100H.: (7.9...8.4)

Dispersion cm3/ : 0.2

100H.: (0.3)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 10.9...11.1
Del.quantity cm3/ : 4.1...4.6
100H.: (3.9...4.8)
Dispersion cm3/ : 0.2
100H.: (0.3)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Contr.-rod travelmm: 0.30...0.70

Governor-spring reload
Notch setting x : 3.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1050
Del.quantity cm3/ : 81.0...82.0
1000H.: (79.0...84.0)
Dispersion cm3/ : 2.00
1000H.: (3.50)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 46...54

Testing:

1st c-rod trav.mm : 11.60
Speed 1/min : 1090...1100
2nd c-rod trav.mm : 4.00
Speed 1/min : 1105...1135
3rd c-rod trav.mm : 4.00
Speed 1/min : 1135...1165
4th speed 1/min : 1300

G-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 10.5

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 300

C-rod trav.mm : 10.90...11.10

C-rod trav.mm : 2.00

Speed 1/min : 410...470

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1050

C-rod trav.mm : 12.60...12.70

2nd speed 1/min : 500

C-rod trav.mm : 12.60...12.80

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 500

Del.quantity cm3/ : 69.5...71.5

1000H.: (67.0...74.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.60

Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 123.0...133.0

1000H.: (120.0...136.0)

Contr.-rod trav.mm: 19.50...21.00

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 4,0 C
Edition : 02.11.87
Superceeded : 2.9.87
Calibrating oil : ISO-4113

Combination no. : 0 400 874 243

Injection pump
Pump designation : PES4A90D41ORS2666-2
EP type number : 0 410 894 033
Governor
Governor design. : RSV350...1200A2C1139
-2L
Governor no. : 0 420 232 471

Customer-spec. information
Customer : DB

Engine : OM364

1st version kW : 50.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35
: (2.20...2.40)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 9.40...9.50

Del.quantity cm3/ : 4.9...5.0

100H.: (4.7...5.2)

Dispersion cm3/ : 0.3

100H.: (0.5)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 8.1...8.7
Del.quantity cm3/ : 1.0...1.2
100H.: (0.8...1.4)
Dispersion cm3/ : 0.2
100H.: (0.4)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Contr.-rod travelmm: 0.30...0.70

Governor-spring reload
Notch setting x : 5.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Del.quantity cm3/ : 49.0...50.0
1000H.: (47.0...52.0)
Dispersion cm3/ : 3.00
1000H.: (5.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 49...57

Testing:
1st c-rod trav.mm : 8.40
Speed 1/min : 1240...1245
2nd c-rod trav.mm : 4.00
Speed 1/min : 1286...1299
3rd c-rod trav.mm : 4.00
Speed 1/min : 1325...1355

4th speed 1/min : 1530
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: -3
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 8.4

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 350
C-rod trav.mm : 8.30...8.50
C-rod trav.mm : 2.00
Speed 1/min : 530...590

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 9.40...9.50
2nd speed 1/min : 800
C-rod trav.mm : 10.50...10.60
3rd speed 1/min : 950
C-rod trav.mm : 10.30...10.50
4th speed 1/min : 1050
C-rod trav.mm : 9.70...10.00

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 800
Del.quantity cm3/ : 45.0...47.0
1000H.: (42.5...49.5)
Speed 1/min : 1000
Del.quantity cm3/ : 48.0...51.0
1000H.: (45.5...53.5)

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 80.0...90.0
1000H.: (77.0...93.0)
Contr.-rod trav.mm: 16.20...16.60

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.10...8.70
Del.quantity cm3/ : 10.0...12.0
1000H.: (8.0...14.0)
Dispersion cm3/ : 2.50
1000H.: (4.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 6,1 D 4
Edition : 12.11.87
Superceeded : 15.5.87
Calibrating oil : ISO-4113

Combination no. : 0 400 876 270

Injection pump
Pump designation : PES6A85D410RS2537
EP type number : 0 410 886 908
Governor
Governor design. : RSV325...1150A8C2020
L

Governer no. : 0 420 232 345

Customer-spec. information
Customer : KHD

Engine : BF6L913

1st version kW : 106.6
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 7.9...8.1

100H.: (7.7...8.3)

Dispersion cm3/ : 0.3

100H.: (0.4)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 6.8...7.0

Del.quantity cm3/ : 0.9...1.5

100H.: (0.7...1.7)

Dispersion cm3/ : 0.2

100H.: (0.4)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 6.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Charge press. hPa : 500

Del.quantity cm3/ : 79.5...81.5

1000H.: (77.5...83.5)

Dispersion cm3/ : 3.00

1000H.: (4.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

3rd c-rod trav.mm : 4.00

Speed 1/min : 1270...1300

4th speed 1/min : 1435

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 20...28

Setting point w/out aux. spring

Speed 1/min : 325

Contr.-rod trav.mm: 6.4

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 325

C-rod trav.mm : 6.80...7.00

C-rod trav.mm : 2.00

Speed 1/min : 590...650

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150

C-rod trav.mm : 11.00...11.10

2nd speed 1/min : 960

C-rod trav.mm : 11.70...11.90

3rd speed 1/min : 500

C-rod trav.mm : 12.50...12.60

Adjustment test, manifold-pressure
compensator (LDA, ADA, ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.60...10.70

2nd pressure hPa : 350

C-rod trav.mm : 12.10...12.20

3rd pressure hPa : 150

C-rod trav.mm : 11.10...11.40

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 500

Speed 1/min : 850

Del.quantity cm3/ : 88.0...91.0

1000H.: (86.0...93.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 60.0...63.0

1000H.: (58.0...65.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00

Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 120.0...130.0

1000H.: (117.0...133.0)

Contr.-rod trav.mm: 17.40...18.00

Remarks:

:

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 1 G 12
 Edition : 12.11.87
 Superceeded : 12.9.86
 Calibrating oil : ISO-4113
 Combination no. : 0 400 876 320
 Injection pump
 Pump designation : PES6A85D41ORS2591
 EP type number : 0 410 886 903
 Governor
 Governor design. : RSV325...1150A8C2020
 Governor no. : 0 420 232 345

Customer-spec. information
 Customer : KHD

Engine : BF6L913

1st version kW : 117.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 12.30...12.40

Del.quantity cm3/ : 8.4...8.5

100H.: (8.2...8.7)

Dispersion cm3/ : 0.3

100H.: (0.4)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 7.9...8.1

Del.quantity cm3/ : 0.9...1.5

100H.: (0.7...1.7)

Dispersion cm3/ : 0.2

100H.: (0.4)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 6.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Charge press. hPa : 700

Del.quantity cm3/ : 84.0...85.0

1000H.: (82.0...87.0)

Dispersion cm3/ : 3.00

1000H.: (4.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 55...63

Testing:

1st c-rod trav.mm : 11.30

Speed 1/min : 1240...1250

2nd c-rod trav.mm : 4.00

Speed 1/min : 1295...1325

3rd c-rod trav.mm : 4.00

Speed 1/min : 1350...1380

4th speed 1/min : 1515
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 18...26
Setting point w/out aux. spring
Speed 1/min : 325
Contr.-rod trav.mm: 7.5

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 325
C-rod trav.mm : 7.90...8.10
C-rod trav.mm : 2.00
Speed 1/min : 640...700

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 12.30...12.40
2nd speed 1/min : 500
C-rod trav.mm : 13.40...13.50
3rd speed 1/min : 925
C-rod trav.mm : 12.80...13.00

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 13.40...13.50

Measurement

Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 12.30...12.40
2nd pressure hPa : 280
C-rod trav.mm : 13.10...13.20
3rd pressure hPa : 175
C-rod trav.mm : 12.60...12.80

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700
Speed 1/min : 650
Del.quantity cm3/ : 79.0...81.0
1000H.: (76.5...83.5)
Charge press. hPa : 700
Speed 1/min : 925
Del.quantity cm3/ : 85.0...87.0
1000H.: (82.5...89.5)
Charge press. hPa : -

D07

Speed 1/min : 500
Del.quantity cm3/ : 67.0...68.0
1000H.: (65.0...70.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 11.30
Speed 1/min : 1240...1250

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 110.0...120.0
1000H.: (107.0...123.0)
Contr.-rod trav.mm: 17.30...17.70

Remarks:

: DX 7.10

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 C 4
 Edition : 12.11.87
 Superceeded : 28.11.86
 Calibrating oil : ISO-4113

Combination no. : 0 400 876 334

Injection pump
 Pump designation : PES6A90D410RS2710-1
 EP type number : 0 410 896 084
 Governor
 Governor design. : RSV350...750AOC2006-3L
 Governor no. : 0 420 232 454

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 54.0
 Speed 1/min: 1500

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35
 : (2.20...2.40)

D08

Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.20...12.30

Del.quantity cm3/ : 6.4...6.5
 100H.: (6.2...6.7)

Dispersion cm3/ : 0.3
 100H.: (0.5)

2nd speed 1/min: 350.0
 Contr.-rod trav. m: 8.2...8.4
 Del.quantity cm3/ : 0.6...1.2
 100H.: (0.4...1.4)

Dispersion cm3/ : 0.2
 100H.: (0.4)

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 700
 Del.quantity cm3/ : 64.0...65.0
 1000H.: (62.0...67.0)

Dispersion cm3/ : 3.00
 1000H.: (5.00)

HIGHEST RATED SPEED

1st version
 Control-lever
 position degrees: 28...36

Testing:
 1st c-rod trav.mm : 11.20
 Speed 1/min : 750...755
 2nd c-rod trav.mm : 4.00
 Speed 1/min : 780...793
 4th speed 1/min : 900
 C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
 position degrees: 16...24
 Setting point w/out aux. spring
 Speed 1/min : 350
 Contr.-rod trav.mm: 8.3

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 350
C-rod trav.mm : 8.20...8.40
C-rod trav.mm : 2.00
Speed 1/min : 380...420

SET IDLE AUXILIARY SPRING
Contr.-rod trav.mm: 2.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 78.0...88.0
1000H.: (75.0...91.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION
Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 1 0 1
Edition : 02.11.87
Superceeded : 22.5.87
Calibrating oil : ISO-4113
Combination no. : 0 400 876 344
Injection pump
Pump designation : PES6A95D41ORS2625
EP type number : 0 410 896 926
Governor
Governor design. : RSV325...1250A2C1159
L
Governor no. : 0 420 232 490

Customer-spec. information
Customer : KHD

Engine : BF6L913C

1st version kW : 130.0
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1250

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm3/ : 8.9...9.0

100H.: (8.7...9.2)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.4...6.6

Del.quantity cm3/ : 1.0...1.6

100H.: (0.7...1.8)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload
Notch setting x : 3.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1250

Charge press. hPa : 900

Del.quantity cm3/ : 89.0...90.0

1000H.: (87.0...92.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 42...50

Testing:

1st c-rod trav.mm : 10.10

Speed 1/min : 1290...1300

2nd c-rod trav.mm : 4.00

Speed 1/min : 1320...1350

3rd c-rod trav.mm : 4.00

Speed 1/min : 1375...1405
4th speed 1/min : 1540
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 5.0

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 350
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 575...635

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1250
C-rod trav.mm : 11.10...11.20
2nd speed 1/min : 500
C-rod trav.mm : 11.10...11.30

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 11.10...11.20

Measurement

Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 10.20...10.30
2nd pressure hPa : 400
C-rod trav.mm : 10.90...11.00
3rd pressure hPa : 330
C-rod trav.mm : 10.50...10.70

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 54.0...56.0
1000H.: (52.0...58.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 500

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.10
Speed 1/min : 1290...1300

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 120.0...130.0
1000H.: (117.0...133.0)
Contr.-rod trav.mm: 17.10...17.30

Remarks:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet	: DEE 7,6 H11
Edition	: 06.11.87
Superceeded	: -
Calibrating oil	: ISO-4113
Combination no.	: 0 400 876 347
Injection pump	
Pump designation	: PES6A100D41ORS2676
EP type number	: 9 410 230 023
Governor	
Governor design.	: RSV600...1100A2C2161 -5L
Governer no.	: 0 420 232 495

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466AZ-02

```
1st version kW : 130.0
Speed      1/min: 2200
```

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0.6

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values _____

START OF DELIVERY
Test pressure, bar: 27...29

```

Prestroke mm      : 2.45...2.55
                  : (2.40...2.60)
Contr.-rod trav.mm: 10.50...10.50
Cam sequence      : 1- 5- 3- 6- 2- 4

```

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + -^o: 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 10.10...10.20

Del.quantity cm3/ : 11.1...11.3

100H.: (10.9...11.5)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 600.0

Contr.-rod trav. m: 4.4...4.6

Del. quantity cm³/ : 1.1...1.5
100H.: (0.8...1.7)

Dispersion cm³/ : 0.7
 100H.: (0.9)

SLEEVE POSITION

Control-lever position
Degree: -3

Speed 17/min: 800
Cont.-rod travelmm: 0.30...0.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 500

Del. quantity cm³/ : 111.0...113.0
1000H.: (109.0...115.0)

Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 42...50

Testing:

1st c-rod trav.mm : 9.10

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1195...1205
4th speed 1/min : 1250
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 23...31
Setting point w/out aux. spring
Speed 1/min : 600
Contr.-rod trav.mm: 4.0

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.00
Speed 1/min : 600
C-rod trav.mm : 3.90...4.10
C-rod trav.mm : 2.00
Speed 1/min : 690...750

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 10.10...10.20
2nd speed 1/min : 950
C-rod trav.mm : 10.80...11.00

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 93
Contr.-rod trav.mm: 9.00...9.10

Measurement

Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 8.30...8.50
2nd pressure hPa : 146
C-rod trav.mm : 9.80...10.20
3rd pressure hPa : 500
C-rod trav.mm : 10.80...11.00

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 500
Speed 1/min : 950
Del.quantity cm3/ : 119.0...122.0
1000H.: (116.5...124.5)
Speed 1/min : 750
Dispersion cm3/ : 4.00
1000H.: (4.00)
Speed 1/min : 500
Del.quantity cm3/ : -
1000H.: (66.0...74.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.10
Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 190.0...210.0
1000H.: (185.0...215.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 600
Contr.-rod trav.mm: 4.40...4.60
Del.quantity cm3/ : 11.0...15.0
1000H.: (8.5...17.5)
Dispersion cm3/ : 7.00
1000H.: (9.00)

Remarks:

: JOHN DEERE
: #RE32396

Setting without torque-control spring
retainer with 1 mm control-rod travel
less. Raising of full-load delivery
with torque-control spring retainer to
10.1 mm control-rod travel.

Start-of-delivery mark = 15.5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 B
 Edition : 06.11.87
 Superceeded : 11.85
 Calibrating oil : ISO-4113
 Combination no. : 0 401 276 049
 Injection pump
 Pump designation : PES6A100D410RS3034
 EP type number : 0 411 206 016
 Governor
 Governor design. : RSV600...1100A2C2080
 L
 Governor no. : 9 420 234 159

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 A

1st version kW : 152.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 1.95...2.05
 : (1.90...2.10)

Contr.-rod trav.mm: 10.50...10.50
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 11.70...11.80

Del.quantity cm3/ : 12.9...13.1

100H.: (12.7...13.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 600.0

Contr.-rod trav. m: 4.5...4.7

Del.quantity cm3/ : 1.3...1.7

100H.: (1.1...1.8)

Dispersion cm3/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Del.quantity cm3/ : 129.0...131.0

1000H.: (127.0...133.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 33...41

Testing:

1st c-rod trav.mm : 10.70

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1195...1225

4th speed 1/min : 1250

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 15...24
Setting point w/out aux. spring
Speed 1/min : 600
Contr.-rod trav.mm: 4.1

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.00
Speed 1/min : 600
C-rod trav.mm : 4.00...4.20
C-rod trav.mm : 2.00
Speed 1/min : 635...695

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : -
Contr.-rod trav.mm: 8.60...8.70

Measurement

Speed 1/min : 500
1st pressure hPa : 333
C-rod trav.mm : 11.55...11.65
2nd pressure hPa : 233
C-rod trav.mm : 10.75...11.15

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : -
1000H.: (65.0...75.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.70
Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 170.0...190.0
1000H.: (165.0...195.0)
Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

D15

1st version

Speed 1/min : 1200
Contr.-rod trav.mm: 4.70...4.90

LOW IDLE

Speed 1/min : 600
Contr.-rod trav.mm: 4.50...4.70
Del.quantity cm3/ : 13.0...17.0
1000H.: (11.5...18.5)
Dispersion cm3/ : 4.00
1000H.: (7.50)

Remarks:

:

Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SSC 38,1 A1
Edition : 06.11.87
Superceeded : 9.10.87
Calibrating oil : ISO-4113

Combination no. : 0 401 830 712

Injection pump
Pump designation : PE12P130A520/6LS3090
-3
EP type number : 0 411 830 706
Governor
Governor design. : RQV300...750PA874
Governor no. : 0 421 813 663

Customer-spec. information
Customer : SSCM

Engine : VD 25-V 12

1st version kW : 632.0
Speed 1/min: 1500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Cam sequence : 1- 8- 5- 10- 3- 7-
6- 11- 2- 9- 4- 12

SD ang. spacing°CS: 0-37.5-60-97.5-120-
157.5-180-217.5-240-
SD ang. spacing°CS: 277.5-300-337.5
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 750

Contr.-rod trav.mm: 13.80...13.90

Del.quantity cm3/ : 34.8...35.1

100H.: (34.4...35.4)

Dispersion cm3/ : 0.6

100H.: (1.0)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.9...6.3

Del.quantity cm3/ : 1.7...2.3

100H.: (1.3...2.7)

Dispersion cm3/ : 1.0

100H.: (1.4)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 600

Sleeve travel mm: 5.10...5.50

3rd speed 1/min: 750

Sleeve travel mm: 7.40...7.80

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 780

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 750

Del.quantity cm3/ : 348.0...351.0

1000H.: (344.5...354.5)

Dispersion cm3/ : 6.00
1000H.: (10.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 62...70

Testing:
1st c-rod trav.mm : 12.80
Speed 1/min : 790...800
2nd c-rod trav.mm : 4.00
Speed 1/min : 850...880
4th speed 1/min : 950
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Control-lever
position degrees: 7...15

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.60
Speed 1/min : 300
C-rod trav.mm : 5.90...6.30

CONSTANT REGULATION
Speed 1/min : 330...440

SWITCH-OVER POINT

Speed 1/min : 250 (270)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.80
Speed 1/min : 790...800

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 5.90...6.30
Del.quantity cm3/ : 17.0...23.0
1000H.: (13.0...27.0)
Dispersion cm3/ : 10.00
1000H.: (14.00)

Remarks:

APPLICATION
Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RVI 9,8 B 4
 Edition : 06.11.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 401 846 497
 Injection pump
 Pump designation : PE6P120A32ORS438-1
 EP type number : 0 411 826 133
 Governor
 Governor design. : RQV275...1200PA648-2
 Governor no. : 0 421 813 490

Customer-spec. information
 Customer : RVI

Engine : MIDS062030

1st version kW : 150.0
 Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1200

Del.quantity cm3/ : 13.3...13.5

100H.: (13.0...13.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 275.0

Contr.-rod trav. m: 5.1...5.3

Del.quantity cm3/ : 1.5...2.1

100H.: (1.2...2.4)

Dispersion cm3/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 275

Sleeve travel mm: 1.20...1.40

2nd speed 1/min: 450

Sleeve travel mm: 3.30...4.00

3rd speed 1/min: 850

Sleeve travel mm: 5.90...6.20

4th speed 1/min: 1200

Sleeve travel mm: 8.20...8.40

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1230

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm3/ : 133.0...135.0

1000H.: (130.0...138.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

D19

1st version
Control-lever
position degrees: 61...69

Setting point:

Speed 1/min : 1230

Contr.-rod trav.mm: 16.5

Testing:

1st c-rod trav.mm : 9.20

Speed 1/min : 1255...1265

2nd c-rod trav.mm : 3.90

Speed 1/min : 1355...1385

4th speed 1/min : 1500

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 8...16

Setting point w/out aux. spring

Speed 1/min : 275

Contr.-rod trav.mm: 5.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.00

Speed 1/min : 275

C-rod trav.mm : 4.90...5.10

CONSTANT REGULATION

Speed 1/min : 275...360

SWITCH-OVER POINT

Speed 1/min : 195 (215)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750

Del.quantity cm3/ : 116.0...122.0

1000H.: (113.0...125.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.20

Speed 1/min : 1255...1265

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 105.0...125.0

1000H.: (101.0...129.0)

LOW IDLE

Speed 1/min : 275
Contr.-rod trav.mm: 4.90...5.10

Remarks:

:

Start-of-delivery mark at the "INJ"
marking

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 S
Edition : 06.11.87
Superceeded : 12.6.87
Calibrating oil : ISO-4113
Combination no. : 0 401 846 529
Injection pump
Pump designation : PE6P120A32ORS3186
EP type number : 0 411 826 756
Governor
Governor design. : RQV250..1025PA657-13
Governer no. : 0 421 813 592

Customer-spec. information
Customer : VOLVO

Engine : TD102F

1st version kW : 220.0
Speed 1/min: 2050

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6,00X1,50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
: (2.55...2.75)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.40...11.50

Del.quantity cm3/ : 19.7...19.9
100H.: (19.4...20.2)

Dispersion cm3/ : 0.5
100H.: (0.9)

2nd speed 1/min: 250.0
Contr.-rod trav. m: 3.9...4.1
Del.quantity cm3/ : 1.7...2.2
100H.: (1.4...2.4)
Dispersion cm3/ : 0.5
100H.: (0.7)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250
Sleeve travel mm: 1.20...1.30
2nd speed 1/min: 430
Sleeve travel mm: 3.50...3.80
3rd speed 1/min: 700
Sleeve travel mm: 6.40...6.60
4th speed 1/min: 900
Sleeve travel mm: 6.40...6.60
5th speed 1/min: 1080
Sleeve travel mm: 8.30...8.50

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1080
Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 700
Charge press. hPa : 1000

Del.quantity cm3/ : 197.0...199.0
1000H.: (194.0...202.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 58...66

Testing:
1st c-rod trav.mm : 10.40
Speed 1/min : 1055...1065
2nd c-rod trav.mm : 4.00
Speed 1/min : 1110...1140
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 4...12

Testing:
Speed 1/min : 100
C-rod trav.mm min : 5.40
Speed 1/min : 250
C-rod trav.mm : 3.90...4.10

CONSTANT REGULATION

Speed 1/min : 250...350

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 11.40...11.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.80...9.00
2nd pressure hPa : 60
C-rod trav.mm : 9.20...9.30
3rd pressure hPa : 400
C-rod trav.mm : 11.10...11.30

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm3/ : 143.0...145.0
1000H.: (140.0...148.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.40
Speed 1/min : 1055...1065

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 3.90...4.10
Del.quantity cm3/ : 17.0...22.0
1000H.: (14.5...24.5)
Dispersion cm3/ : 5.00
1000H.: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 7,1 A 3
 Edition : 02.11.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 401 846 534
 Injection pump
 Pump designation : PE6P110A320RS483-4
 EP type number : 0 411 816 172
 Governor
 Governor design. : RQV250...1200PA499-5
 Governor no. : 0 421 813 577

Customer-spec. information
 Customer : VOLVO

Engine : TD71FD

1st version kW : 158.0
 Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.80...11.90

Del.quantity cm3/ : 12.0...12.2
 100H.: (11.7...12.5)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0
 Contr.-rod trav. m: 5.3...5.5
 Del.quantity cm3/ : 1.6...2.0
 100H.: (-)
 Dispersion cm3/ : 0.3
 100H.: (0.6)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250
 Sleeve travel mm: 1.10...1.30
 2nd speed 1/min: 380
 Sleeve travel mm: 2.30...2.60
 3rd speed 1/min: 500
 Sleeve travel mm: 2.90...3.30
 4th speed 1/min: 1260
 Sleeve travel mm: 7.70...7.90
 5th speed 1/min: 1400
 Sleeve travel mm: 9.00...9.30

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 1330
 Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 700
 Charge press. hPa : 900
 Del.quantity cm3/ : 120.0...122.0
 1000H.: (117.0...125.0)
 Dispersion cm3/ : 4.00
 1000H.: (7.50)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 54...62

Testing:

1st c-rod trav.mm : 10.80
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1390...1420
4th speed 1/min : 1550
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 6...14

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.80
Speed 1/min : 250
C-rod trav.mm : 5.30...5.50

CONSTANT REGULATION

Speed 1/min : 250...480

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 11.80...11.90

Measurement

Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 10.20...10.30
2nd pressure hPa : 470
C-rod trav.mm : 11.60...11.70

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm3/ : 85.0...88.0
1000H.: (82.0...91.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.80
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 170.0...200.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 5.30...5.50
Del.quantity cm3/ : 16.0...20.0
Dispersion cm3/ : 3.00
1000H.: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12,2 A
 Edition : 02.11.87
 Superceeded : 12.6.87
 Calibrating oil : ISO-4113
 Combination no. : 0 401 846 827
 Injection pump
 Pump designation : PE6P120A32ORS3178
 EP type number : 0 411 826 752
 Governor
 Governor design. : RQV250...950PA657-11
 Governor no. : 0 421 813 568

Customer-spec. information
 Customer : VOLVO

Engine : TD122F

1st version kW : 257.0
 Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.00...13.10

Del.quantity cm3/ : 22.9...23.1

100H.: (22.6...23.4)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 4.6...4.8

Del.quantity cm3/ : 1.7...2.2

100H.: (1.4...2.5)

Dispersion cm3/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.00...1.40

2nd speed 1/min: 450

Sleeve travel mm: 3.60...4.20

3rd speed 1/min: 700

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 985

Sleeve travel mm: 8.20...8.40

5th speed 1/min: 1060

Sleeve travel mm: 9.60...10.00

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1000

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 229.0...231.0
1000H.: (226.0...234.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 60...68

Testing:
1st c-rod trav.mm : 12.00
Speed 1/min : 980...990
2nd c-rod trav.mm : 4.00
Speed 1/min : 1060...1090
4th speed 1/min : 1200
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 5...13

Testing:
Speed 1/min : 100
C-rod trav.mm min : 6.20
Speed 1/min : 250
C-rod trav.mm : 4.60...4.80

CONSTANT REGULATION

Speed 1/min : 250...380

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.80...10.00
2nd pressure hPa : 100
C-rod trav.mm : 10.20...10.30
3rd pressure hPa : 640
C-rod trav.mm : 12.60...12.80

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm3/ : 163.0...165.0
1000H.: (160.0...168.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 12.00
Speed 1/min : 980...990

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 220.0...260.0
1000H.: (216.0...264.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 4.60...4.80
Del.quantity cm3/ : 17.5...22.5
1000H.: (14.5...25.5)
Dispersion cm3/ : 5.00
1000H.: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 S2
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 401 846 836
Injection pump
Pump designation : PE6P120A32ORS3186-1
EP type number : 0 411 826 774
Governor
Governor design. : RQV250..1100PA657-14
Governer no. : 0 421 813 682

Customer-spec. information
Customer : VOLVO

Engine : TD102FDQ

1st version kW : 232.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
: (2.55...2.75)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.40...11.50

Del. quantity cm3/ : 19.7...19.9

100H.: (19.4...20.2)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.9...4.1

Del. quantity cm3/ : 1.7...2.2

100H.: (1.4...2.4)

Dispersion cm3/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.00...1.40

2nd speed 1/min: 350

Sleeve travel mm: 2.20...2.80

3rd speed 1/min: 700

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 1135

Sleeve travel mm: 7.70...7.90

5th speed 1/min: 1210

Sleeve travel mm: 8.90...9.30

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1170

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1000

Del.quantity cm³/ : 197.0...199.0
1000H.: (194.0...202.0)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 56...64

Testing:

1st c-rod trav.mm : 10.40
Speed 1/min : 1130...1140
2nd c-rod trav.mm : 4.00
Speed 1/min : 1185...1215
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 4...12

Testing:

Speed 1/min : 100
C-rod trav.mm min : 5.40
Speed 1/min : 250
C-rod trav.mm : 3.90...4.10

CONSTANT REGULATION

Speed 1/min : 250...360

Adjustment test, manifold-pressure
compensator (LDA, ADA, ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.60...8.80
2nd pressure hPa : 80
C-rod trav.mm : 8.90...9.00
3rd pressure hPa : 460
C-rod trav.mm : 11.00...11.20

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm³/ : 143.0...155.0
1000H.: (140.0...148.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.40
Speed 1/min : 1130...1140

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 3.90...4.10
Del.quantity cm³/ : 17.0...22.0
1000H.: (14.5...24.5)
Dispersion cm³/ : 5.00
1000H.: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ENA i1,9 E
 Edition : 02.11.87
 Superceeded : 9.10.87
 Calibrating oil : ISO-4113
 Combination no. : 0 401 846 861
 Injection pump
 Pump designation : PE6P120A320RS3176-1
 EP type number : 0 411 826 767
 Governor
 Governor design. : RQV250...1050PA808
 Governor no. : 0 421 813 553

Customer-spec. information
 Customer : ENASA

Engine : 96 R1 AX

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
 : (3.75...3.95)
 Contr.-rod trav.mm: 9.00...12.00

E01

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1030

 Contr.-rod trav.mm: 13.40...13.50

 Del.quantity cm3/ : 24.8...25.0

 100H.: (24.5...25.3)

 Dispersion cm3/ : 0.5

 100H.: (0.9)

2nd speed 1/min: 250.0
 Contr.-rod trav. m: 3.8...4.0
 Del.quantity cm3/ : 2.5...3.1
 100H.: (2.2...3.4)
 Dispersion cm3/ : 0.8
 100H.: (1.2)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250
 Sleeve travel mm: 1.00...1.40
 2nd speed 1/min: 350
 Sleeve travel mm: 1.70...2.30
 3rd speed 1/min: 700
 Sleeve travel mm: 4.50...5.10
 4th speed 1/min: 1095
 Sleeve travel mm: 8.20...8.40
 5th speed 1/min: 1195
 Sleeve travel mm: 9.40...9.80

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 1110
 Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 1030
 Charge press. hPa : 900
 Del.quantity cm3/ : 248.0...250.0
 1000H.: (245.0...253.0)
 Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 44...52

Testing:
1st c-rod trav.mm : 12.40
Speed 1/min : 1090...1100
2nd c-rod trav.mm : 4.00
Speed 1/min : 1180...1210
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Control-lever
position degrees: 8...16

Testing:
Speed 1/min : 100
C-rod trav.mm min : 5.50
Speed 1/min : 250
C-rod trav.mm : 3.80...4.00

CONSTANT REGULATION
Speed 1/min : 250...350

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 13.40...13.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.80...10.20
2nd pressure hPa : 550
C-rod trav.mm : 12.60...12.70
3rd pressure hPa : 280
C-rod trav.mm : 10.90...11.10

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 900
Speed 1/min : 650
Del.quantity cm3/ : 247.0...253.0
1000H.: (244.0...256.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 158.0...160.0
1000H.: (155.0...163.0)

E02

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.40
Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 160.0...190.0
1000H.: (156.0...194.0)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
APPLICATION
Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 10,0 F
Edition : 02.11.87
Superceeded : 10.85
Calibrating oil : ISO-4113
Combination no. : 0 401 876 738
Injection pump
Pump designation : PE6P110A32ORS3132
EP type number : 0 411 816 742
Governor
Governor design. : RSV200...1100P1/421-
1
Governor no. : 0 421 833 154

Customer-spec. information
Customer : VOLVO-PENTA

Engine : TID100K

1st version kW : 225.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.00...13.10

Del.quantity cm3/ : 17.6...17.8

100H.: (17.3...18.1)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 200.0

Contr.-rod trav. m: 3.7...3.9

Del.quantity cm3/ : 1.7...2.1

100H.: (1.4...2.3)

Dispersion cm3/ : 0.3

100H.: (0.6)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload
Notch setting x : 4.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 176.0...178.0

1000H.: (173.0...181.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 53...61

Testing:

1st c-rod trav.mm : 12.00

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1175...1205

4th speed 1/min : 1340
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I

Control-lever
position degrees: 16...24
Setting point w/out aux. spring
Speed 1/min : 200
Contr.-rod trav.mm: 3.3
Speed 1/min : 200
C-rod trav.mm : 3.20...3.40
C-rod trav.mm : 2.00
Speed 1/min : 220...280

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.00
Speed 1/min : 1140...1150

LOW IDLE

Speed 1/min : 200
Contr.-rod trav.mm: 3.70...3.90
Del.quantity cm3/ : 17.0...21.0
1000H.: (14.5...23.5)
Dispersion cm3/ : 3.00
1000H.: (6.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12,1 E1
 Edition : 06.11.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 401 876 741
 Injection pump
 Pump designation : PE6P120A320RS3153
 EP type number : 0 411 826 745
 Governor
 Governor design. : RSV250...1000P1A305-
 4
 Governor no. : 0 421 833 286

Customer-spec. information
 Customer : VOLVO

Engine : TJD 121 K

1st version kW : 253.0
 Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

E05

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.50...11.60

Del.quantity cm3/ : 22.4...22.7

100H.: (22.2...23.0)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm3/ : 2.3...2.9

100H.: (2.0...3.2)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 6.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 224.5...227.5

1000H.: (222.0...230.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

Testing:

1st c-rod trav.mm : 10.50

Speed 1/min : 1020...1030
2nd c-rod trav.mm : 4.00
Speed 1/min : 1070...1100
4th speed 1/min : 1240
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 23...31
Setting point w/out aux. spring
Speed 1/min : 250
Contr.-rod trav.mm: 5.0
Speed 1/min : 250
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 310...370

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 950
C-rod trav.mm : 11.40...11.70
2nd speed 1/min : 450
C-rod trav.mm : 11.40...11.70
3rd speed 1/min : 250
C-rod trav.mm : 12.70...13.30

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.50
Speed 1/min : 1020...1030

STARTING FUEL DELIVERY

Speed 1/min : 100

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 P 5
Edition : 02.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 401 878 711
Injection pump
Pump designation : PE8P120A32OLS3816-10
EP type number : 0 411 828 715
Governor
Governor design. : RSV650...1150POA823-5
Governor no. : 0 421 833 166

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442A

1st version kW : 206.0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 1180

Contr.-rod trav.mm: 9.80...9.90

Del.quantity cm3/ : 14.4...14.6

100H.: (14.1...14.9)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 650.0

Contr.-rod trav. m: 3.4...3.6

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1180

Del.quantity cm3/ : 144.0...146.0

1000H.: (141.0...149.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 42...50

Testing:

1st c-rod trav.mm : 8.80
Speed 1/min : 1210...1220
2nd c-rod trav.mm : 4.00
Speed 1/min : 1235...1255
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 20...28
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 3.6

Testing:

Speed 1/min : 100
Speed 1/min : 650
C-rod trav.mm : 3.50...3.70
C-rod trav.mm : 2.00
Speed 1/min : 655...695

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1180
C-rod trav.mm : 9.80...9.90
2nd speed 1/min : 950
C-rod trav.mm : 10.50...10.60
3rd speed 1/min : 1050
C-rod trav.mm : 10.10...10.20

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 950
Del.quantity cm3/ : 162.0...166.0
1000H.: (159.0...169.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)

POTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.80
Speed 1/min : 1210...1220

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

:

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,9 G7
 Edition : 06.11.87
 Superceeded : 18.8.87
 Calibrating oil : ISO-4113
 Combination no. : 0 402 036 066
 Injection pump
 Pump designation : PES6P110A720/3LS477-
 2
 EP type number : 0 412 016 071
 Governor
 Governor design. : RQ250/1100PA845
 Governor no. : 0 421 801 380
 Cust. part no. : MAN-NR.2-7821

Customer-spec. information
 Customer : MAN

Engine : D2866 F

1st version kW : 177.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 11.70...11.80

Del.quantity cm3/ : 12.3...12.6
 100H.: (12.0...12.8)

Dispersion cm3/ : 0.4
 100H.: (0.7)

2nd speed 1/min: 250.0
 Contr.-rod trav. m: 6.0...6.2
 Del.quantity cm3/ : 1.5...2.0
 100H.: (1.2...2.2)
 Dispersion cm3/ : 0.4
 100H.: (0.7)

SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed 1/min: 600
 Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 800
 Del.quantity cm3/ : 123.0...126.0
 1000H.: (120.5...128.5)
 Dispersion cm3/ : 4.00
 1000H.: (7.50)

HIGHEST RATED SPEED

1st version
 Setting point:
 Speed 1/min : 600
 Contr.-rod trav.mm: 20.0

Testing:
 1st c-rod trav.mm : 10.70
 Speed 1/min : 1145...1160
 2nd c-rod trav.mm : 4.00

Speed 1/min : 1230...1260
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 250
Contr.-rod trav.mm: 6.1

Testing:

Speed 1/min : 100
C-rod trav.mm min : 7.60
Speed 1/min : 250
C-rod trav.mm : 6.00...6.20
C-rod trav.mm : 2.00
Speed 1/min : 320...360

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 800
C-rod trav.mm : 12.20...12.30
2nd speed 1/min : 1100
C-rod trav.mm : 12.10...12.30

SWITCH-OVER POINT

Speed 1/min : 170 (190)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 1100
Del.quantity cm3/ : 132.0...138.0
1000H.: (129.0...141.0)
Speed 1/min : 500
Del.quantity cm3/ : 117.0...123.0
1000H.: (114.0...126.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.70
Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 110.0...130.0
1000H.: (106.0...134.0)

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 6.00...6.20

Del.quantity cm3/ : 15.0...20.0
1000H.: (12.5...22.5)
Dispersion cm3/ : 4.50
1000H.: (7.50)

Remarks:

: MAN-NR. 2-7821

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,9A27
 Edition : 06.11.87
 Superceeded : 9.3.87
 Calibrating oil : ISO-4113
 Combination no. : 0 402 036 068
 Injection pump
 Pump designation : PES6P120A720/3LS470-
 2
 EP type number : 0 412 026 050
 Governor
 Governor design. : RQ300/1100PA658-22
 Governor no. : 0 421 801 389

Cust. part no. : MAN-NR.2-7820

Customer-spec. information
 Customer : MAN

Engine : D2866TOH

1st version kW : 213.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - ⁰ : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 750

Contr.-rod trav.mm: 10.60...10.70

Del.quantity cm3/ : 19.1...19.3

100H.: (18.8...19.6)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 4.7...4.9

Del.quantity cm3/ : 1.2...1.8
100H.: (0.9...2.1)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 650

Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 750

Charge press. hPa : 1000

Del.quantity cm3/ : 191.0...193.0
1000H.: (188.0...196.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 650

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 9.30

Speed 1/min : 1145...1160

2nd c-rod trav.mm : 4.00

Speed 1/min : 1180...1210

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 4.8

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.30

Speed 1/min : 300

C-rod trav.mm : 4.70...4.90

C-rod trav.mm : 2.00

Speed 1/min : 340...380

TORQUE CONTROL

Dimension a mm : 0.30

Torque-control curve - 1st version

1st speed 1/min : 750

C-rod trav.mm : 11.10...11.20

2nd speed 1/min : 1100

C-rod trav.mm : 10.30...10.40

3rd speed 1/min : 980

C-rod trav.mm : 10.80...11.00

4th speed 1/min : 1025

C-rod trav.mm : 10.40...10.70

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 1000

Contr.-rod trav.mm: 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 8.80...8.90

2nd pressure hPa : 240

C-rod trav.mm : 9.10...9.20

3rd pressure hPa : 520

C-rod trav.mm : 10.00...10.40

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1000
Speed 1/min : 1100
Del.quantity cm3/ : 193.0...197.0
1000H.: (190.0...200.0)
Charge press. hPa : 1000
Speed 1/min : 650
Del.quantity cm3/ : 184.0...190.0
1000H.: (181.0...193.0)
Charge press. hPa : 520
Speed 1/min : 500
Del.quantity cm3/ : 168.0...180.0
1000H.: (165.0...183.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 128.0...130.0
1000H.: (125.0...133.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.30
Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 225.0...245.0
1000H.: (221.0...249.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 4.70...4.90
Del.quantity cm3/ : 12.0...18.0
1000H.: (9.0...21.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks:

: MAN-NR. 2-7820

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,9A29
Edition : 06.11.87
Superceeded : 26.6.87
Calibrating oil : ISO-4113
Combination no. : 0 402 036 070
Injection pump
Pump designation : PES6P120A720/3LS470-3
EP type number : 0 412 026 051
Governor
Governor design. : RQV300...1100PA707-2
Governor no. : 0 421 813 638

Customer-spec. information
Customer : MAN

Engine : D2866LUL/290

1st version kW : 213.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6,00X1,50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 750
Contr.-rod trav.mm: 10.60...10.70
Del.quantity cm3/ : 18.3...18.5
100H.: (18.0...18.8)
Dispersion cm3/ : 0.5
100H.: (0.9)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 5.4...5.6
Del.quantity cm3/ : 1.2...1.8
100H.: (0.9...2.1)
Dispersion cm3/ : 0.8
100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300
Sleeve travel mm: 1.60...1.80
2nd speed 1/min: 475
Sleeve travel mm: 3.10...3.50
3rd speed 1/min: 850
Sleeve travel mm: 5.50...5.90
4th speed 1/min: 1100
Sleeve travel mm: 7.40...7.60

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1175
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 750
Charge press. hPa : 1000
Del.quantity cm3/ : 183.0...185.0
1000H.: (180.0...188.0)

Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 48...56

Testing:
1st c-rod trav.mm : 9.60
Speed 1/min : 1140...1150
2nd c-rod trav.mm : 4.00
Speed 1/min : 1225...1255
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Control-lever
position degrees: 15...23

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.00
Speed 1/min : 300
C-rod trav.mm : 5.40...5.60

CONSTANT REGULATION
Speed 1/min : 310...410

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 10.60...10.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.80...8.90
2nd pressure hPa : 210
C-rod trav.mm : 9.10...9.20
3rd pressure hPa : 375
C-rod trav.mm : 9.90...10.20

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1000
Speed 1/min : 1100

Del.quantity cm3/ : 192.0...198.0
1000H.: (189.0...201.0)
Charge press. hPa : 1000
Speed 1/min : 650
Del.quantity cm3/ : 172.0...178.0
1000H.: (169.0...181.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 119.0...121.0
1000H.: (116.0...124.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.60
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 225.0...245.0
1000H.: (221.0...249.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 5.40...5.60
Del.quantity cm3/ : 12.0...18.0
1000H.: (9.0...21.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,9A30
Edition : 06.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 402 036 071
Injection pump
Pump designation : PES6P120A720/3LS470-
2
EP type number : 0 412 026 050
Governor
Governor design. : RQ300/1100PA813-3
Governor no. : 0 421 801 422

Customer-spec. information
Customer : MAN

Engine : D2866T0H

1st version kW : 213.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 750

Contr.-rod trav.mm: 10.60...10.70

Del.quantity cm3/ : 19.1...19.3
 100H.: (18.8...19.6)

Dispersion cm3/ : 0.5
 100H.: (0.9)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 4.9...5.1
Del.quantity cm3/ : 1.2...1.8
 100H.: (0.9...2.1)
Dispersion cm3/ : 0.8
 100H.: (1.2)

SLEEVE POSITION

Control-lever position
Degree: -2
Speed 1/min: 750
Contr.-rod travelmm: 14.70...16.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 750
Charge press. hPa : 1000
Del.quantity cm3/ : 191.0...193.0
 1000H.: (188.0...196.0)
Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Setting point:
Speed 1/min : 750
Contr.-rod trav.mm: 15.5

Testing:
1st c-rod trav.mm : 9.30

Speed 1/min : 1145...1160
2nd c-rod trav.mm : 4.00
Speed 1/min : 1180...1210
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 5.0

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.50
Speed 1/min : 300
C-rod trav.mm : 4.90...5.10
C-rod trav.mm : 2.00
Speed 1/min : 385...425

TORQUE CONTROL

Dimension a mm : 0.30
Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 10.30...10.40
2nd speed 1/min : 750
C-rod trav.mm : 11.20...11.30
3rd speed 1/min : 980
C-rod trav.mm : 10.90...11.10
4th speed 1/min : 1030
C-rod trav.mm : 10.40...10.70

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 10.60...10.70

Measurement

Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 8.80...8.90
2nd pressure hPa : 240
C-rod trav.mm : 9.10...9.20
3rd pressure hPa : 520
C-rod trav.mm : 10.00...10.40

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1000

Speed 1/min : 1100
Del.quantity cm3/ : 193.0...197.0
1000H.: (190.0...200.0)
Charge press. hPa : 1000
Speed 1/min : 650
Del.quantity cm3/ : 184.0...190.0
1000H.: (181.0...193.0)
Charge press. hPa : 520
Speed 1/min : 500
Del.quantity cm3/ : 168.0...180.0
1000H.: (165.0...183.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 119.0...121.0
1000H.: (116.0...124.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 9.30
Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 225.0...245.0
1000H.: (221.0...249.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 4.90...5.10
Del.quantity cm3/ : 12.0...18.0
1000H.: (9.0...21.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,9 68
Edition : 06.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 402 036 072
Injection pump
Pump designation : PES6P110A720/3LS477-
2
EP type number : 0 412 016 071
Governor
Governor design. : RQ250/1100PA845-1
Governor no. : 0 421 801 423

Customer-spec. information
Customer : MAN

Engine : D2566IUH/205
1st version kW : 150.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Calibrating nozzle-holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test inj. tubing : 1 680 750 015
Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600
(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32
Prestroke mm : 3.50...3.60
: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - ^o : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 10.30...10.40

Del.quantity cm3/ : 9.1...9.4

100H.: (8.8...9.6)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav.m: 5.5...5.7

Del.quantity cm3/ : 1.5...2.0

100H.: (1.2...2.2)

Dispersion cm3/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Del.quantity cm3/ : 91.0...94.0

1000H.: (88.5...96.5)

Dispersion cm3/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 9.30

Speed 1/min : 1145...1160

2nd c-rod trav.mm : 4.00

Speed 1/min : 1205...1235

4th speed 1/min : 1350

E20

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 250

Contr.-rod trav.mm: 5.6

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.10

Speed 1/min : 250

C-rod trav.mm : 5.50...5.70

C-rod trav.mm : 2.00

Speed 1/min : 315...355

TORQUE CONTROL

Dimension a mm : -

Torque-control curve - 1st version

1st speed 1/min : 800

C-rod trav.mm : 10.80...10.90

2nd speed 1/min : 1100

C-rod trav.mm : 10.70...10.90

SWITCH-OVER POINT

Speed 1/min : 170 (190)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 1100

Del.quantity cm3/ : 103.0...107.0

1000H.: (100.0...110.0)

Speed 1/min : 500

Del.quantity cm3/ : 81.0...85.0

1000H.: (78.0...88.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.30

Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 110.0...130.0

1000H.: (106.0...134.0)

LOW IDLE

Speed 1/min : 250

Contr.-rod trav.mm: 5.50...5.70

Del.quantity cm3/ : 15.0...20.0

1000H.: (12.5...22.5)

Dispersion cm³/ : 4.50
 1000H.: (7.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RVI 9,8 A 8
Edition : 06.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 402 046 332

Injection pump
Pump designation : PES6P120A32ORS419-2
EP type number : 0 412 026 048
Governor
Governor design. : RQ275/1050PA844
Governor no. : 0 421 801 379

Customer-spec. information
Customer : RVI

Engine : MIPS062045B

1st version kW : 176.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 9.20...9.30

Del.quantity cm3/ : 16.1...13.6
 100H.: (15.8...13.9)

Dispersion cm3/ : 0.5
 100H.: (0.9)

2nd speed 1/min: 275.0
Contr.-rod trav.m: 4.9...5.1
Del.quantity cm3/ : 1.7...2.3
 100H.: (1.4...2.6)
Dispersion cm3/ : 0.8
 100H.: (1.2)

SLEEVE POSITION

Control-lever position
Degree: -2
Speed 1/min: 600
Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1050
Charge press. hPa : 700
Del.quantity cm3/ : 161.0...136.0
 1000H.: (158.0...139.0)
Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:
Speed 1/min : 600
Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 8.20
Speed 1/min : 1110...1120
2nd c-rod trav.mm : 4.00
Speed 1/min : 1170...1200

4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 275
Contr.-rod trav.mm: 5.6

Testing:

Speed 1/min : 200
C-rod trav.mm min : 5.50
Speed 1/min : 275
C-rod trav.mm : 3.50...3.70
C-rod trav.mm : 2.00
Speed 1/min : 300...340

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1050
C-rod trav.mm : 9.70...9.80
2nd speed 1/min : 700
C-rod trav.mm : 9.70...9.90

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 9.20...9.300

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.20...8.30
2nd pressure hPa : 260
C-rod trav.mm : 8.90...9.00
3rd pressure hPa : 230
C-rod trav.mm : 8.40...8.60

SWITCH-OVER POINT

Speed 1/min : 195 (215)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700
Speed 1/min : 700
Del.quantity cm3/ : 149.0...155.0
 1000H.: (146.0...158.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 103.0...105.0
 1000H.: (100.0...108.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.20

Speed 1/min : 1110...1120

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 140.0...160.0

1000H.: (136.0...164.0)

LOW IDLE

Speed 1/min : 275

Contr.-rod trav.mm: 3.50...3.70

Remarks:

:

Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 9,6 W
Edition : 06.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 402 046 792
Injection pump
Pump designation : PES6P110A720RS3104
EP type number : 0 412 016 712
Governor
Governor design. : RQV400...1100PA882
Governor no. : 0 421 813 681

Customer-spec. information
Customer : KHD

Engine : BF6LS13R

1st version kW : 176.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 12.90...13.00

Del.quantity cm3/ : 14.1...14.3

100H.: (13.8...14.6)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 400.0
Contr.-rod trav. m: 5.7...5.9
Del.quantity cm3/ : 1.2...1.8
100H.: (1.0...2.0)
Dispersion cm3/ : 0.4
100H.: (0.7)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 400
Sleeve travel mm: 0.80...1.20
2nd speed 1/min: 600
Sleeve travel mm: 2.80...3.60
3rd speed 1/min: 700
Sleeve travel mm: 5.60...6.20
4th speed 1/min: 1140
Sleeve travel mm: 8.20...8.40
5th speed 1/min: 1230
Sleeve travel mm: 9.50...9.90

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1150
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1100
Charge press. hPa : 700
Del.quantity cm3/ : 141.0...143.0
1000H.: (138.0...146.0)
Dispersion cm3/ : 4.00
1000H.: (7.50)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 57...65

Testing:
1st c-rod trav.mm : 11.90
Speed 1/min : 1140...1150
2nd c-rod trav.mm : 4.00
Speed 1/min : 1220...1250
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Control-lever
position degrees: 8...16

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.20
Speed 1/min : 400
C-rod trav.mm : 5.70...5.90

CONSTANT REGULATION
Speed 1/min : 400...650

TORQUE CONTROL
Dimension a mm : 0.40
Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 12.90...13.00
2nd speed 1/min : 650
C-rod trav.mm : 13.30...13.40
3rd speed 1/min : 750
C-rod trav.mm : 13.10...13.30
4th speed 1/min : 950
C-rod trav.mm : 12.90...13.10

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 450
Pressure hPa : 700
Contr.-rod trav.mm: 13.30...13.40

Measurement
Speed 1/min : 450

1st pressure hPa : -
C-rod trav.mm : 12.30...12.50
2nd pressure hPa : 400
C-rod trav.mm : 13.10...13.20
3rd pressure hPa : 360
C-rod trav.mm : 12.70...12.90

SWITCH-OVER POINT

E26

Speed 1/min : 320 (340)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 700
Speed 1/min : 650
Del.quantity cm3/ : 148.0...152.0
1000H.: (145.0...155.0)
Charge press. hPa : -
Speed 1/min : 450
Del.quantity cm3/ : 123.0...125.0
1000H.: (120.0...128.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.90
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 170.0...200.0
1000H.: (166.0...204.0)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

APPLICATION
Wheel loader

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RVI 14,9 F1
Edition : 10.04.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 402 048 046
Injection pump
Pump designation : PES8P120A32ORS507
EP type number : 0 412 028 023
Governor
Governor design. : RQV275...1050PA665-2
Governor no. : 0 421 813 623

Customer-spec. information
Customer : RVI

Engine : MIVRO83530

1st version kW : 268.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 8- 4- 2- 7- 3-
 6- 5

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 18.2...18.4

100H.: (17.9...18.7)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 275.0

Contr.-rod trav. m: 5.6...5.8

Del.quantity cm3/ : 1.9...2.5

100H.: (1.6...2.8)

Dispersion cm3/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 275

Sleeve travel mm: 1.30...1.70

2nd speed 1/min: 400

Sleeve travel mm: 3.00...3.50

3rd speed 1/min: 525

Sleeve travel mm: 4.00...4.40

4th speed 1/min: 650

Sleeve travel mm: 4.90...5.30

5th speed 1/min: 1050

Sleeve travel mm: 7.60...7.80

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1140

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050

Charge press. hPa : 700

Del.quantity cm3/ : 182.0...184.0
1000H.: (179.0...187.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:
1st c-rod trav.mm : 10.00
Speed 1/min : 1105...1115
2nd c-rod trav.mm : 4.00
Speed 1/min : 1195...1225
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 7...15

Testing:
Speed 1/min : 200
C-rod trav.mm min : 7.40
Speed 1/min : 275
C-rod trav.mm : 5.60...5.80

CONSTANT REGULATION

Speed 1/min : 290...405

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 11.00...11.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.40...9.60
2nd pressure hPa : 150
C-rod trav.mm : 10.60...10.70
3rd pressure hPa : 110
C-rod trav.mm : 9.80...10.00

SWITCH-OVER POINT

Speed 1/min : 195 (215)

FUEL-DELIVERY CHARACTERISTICS

1st version

E28

Charge press. hPa : 700
Speed 1/min : 650
Del.quantity cm3/ : 165.0...171.0
1000H.: (162.0...174.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 116.0...118.0
1000H.: (113.0...121.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.00
Speed 1/min : 1105...1115

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0
1000H.: (136.0...164.0)

LOW IDLE

Speed 1/min : 275
Contr.-rod trav.mm: 5.60...5.80
Del.quantity cm3/ : 19.0...25.0
1000H.: (16.0...28.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks:

:
Start-of-delivery mark 13° cam angle
after start of delivery cyl. 1.

LOWEST RATED SPEED I

Control-lever

position degrees: 18...26

Setting point w/out aux. spring

Speed 1/min : 425

Contr.-rod trav.mm: 5.4

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 425

C-rod trav.mm : 5.60...6.00

C-rod trav.mm : 2.00

Speed 1/min : 600...660

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 10.20...10.30

2nd speed 1/min : 750

C-rod trav.mm : 11.40...11.60

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : -

Contr.-rod trav.mm: 9.35...9.55

Measurement

Speed 1/min : 500

1st pressure hPa : 200

C-rod trav.mm : 11.00...11.10

2nd pressure hPa : 80

C-rod trav.mm : 9.70...10.10

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 500

Speed 1/min : 750

Del.quantity cm3/ : 127.5...130.5

1000H.: (125.0...133.0)

Charge press. hPa : -

Speed 1/min : 750

Dispersion cm3/ : 4.00

1000H.: (4.00)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.20

Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 190.0...210.0

1000H.: (185.0...215.0)

Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

1st version

Speed 1/min : 1190

Contr.-rod trav.mm: 5.70...5.90

LOW IDLE

Speed 1/min : 425

Contr.-rod trav.mm: 5.80...6.00

Del.quantity cm3/ : 24.0...28.0

1000H.: (21.5...30.5)

Dispersion cm3/ : 7.00

1000H.: (9.00)

Remarks:

: JOHN DEERE # 16418

Adjustment without torque-control

spring retainer with 1 mm less

Start-of-delivery mark = 15.5° after

start of delivery cyl. 1. rque-control
pring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 10,6 D
Edition : 12.11.87
Superceeded : 7.86
Calibrating oil : ISO-4113
Combination no. : 0 402 076 038
Injection pump
Pump designation : PES6P110A72ORS296
Governor
Governor design. : RSV400...900PO/44ODR

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42
Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Prestroke mm : 2,75...2,85
: (2,70...2,90)
Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - ° : 0,5 (0,75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 11.60...11.70

Del.quantity cm3/ : 16.0...16.2

100H.: (-)

Dispersion cm3/ : 0.4

100H.: (-)

2nd speed 1/min: 400
Contr.-rod trav. m: 6.20...6.40
Del.quantity cm3/ : 1.9...2.5
100H.: (-)
Dispersion cm3/ : 0.4
100H.: (-)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Cont.-rod travelmm: 0.30...1.00

Governor-spring reload
Notch setting x : -

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 900
Charge press. hPa : 800
Del.quantity cm3/ : 160.0...162.0
1000H.: (156.0...166.0)
Dispersion cm3/ : 4.0
1000H.: (-)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 38...46

Testing:
1st c-rod trav.mm : 10.60
Speed 1/min : 950...960
2nd c-rod trav.mm : 6.20
Speed 1/min : 985...1015
3rd c-rod trav.mm : 0.20...1.30
Speed 1/min : 800
4th speed 1/min : 1100
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I
Control-lever

position degrees: 21...29
Setting point w/out aux. spring
Speed 1/min : 400
Contr.-rod trav.mm: 5.7

Testing:

Speed 1/min : 100
C-rod trav.mm min : 21.00
Speed 1/min : 400
C-rod trav.mm : 6.10...6.30
C-rod trav.mm : 2.00
Speed 1/min : 470...530

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 900
C-rod trav.mm : 11.55...11.60
2nd speed 1/min : 700
C-rod trav.mm : 12.10...12.30
3rd speed 1/min : 650
C-rod trav.mm : 12.45...12.55
4th speed 1/min : 550
C-rod trav.mm : 12.80

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 550
Pressure hPa : 420
Contr.-rod trav.mm: 11.25...11.35

Measurement

Speed 1/min : 550
1st pressure hPa : 570
C-rod trav.mm : 12.28...12.32

SWITCH-OVER POINT

Speed 1/min : 400...750

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 800
Speed 1/min : 650
Del.quantity cm3/ : 177.0...180.0
1000H.: (171.0...186.0)
Dispersion cm3/ : -
1000H.: (-)
Charge press. hPa : -
Speed 1/min : 550
Del.quantity cm3/ : 135.0...141.0
1000H.: (129.0...147.0)
Dispersion cm3/ : -
1000H.: (-)

F02

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.60
Speed 1/min : 950...960

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 190.0...210.0
1000H.: (-)

HIGH IDLE

1st version

Speed 1/min : 1000
Del.quantity cm3/ : 47.0...57.0
1000H.: (-)

LOW IDLE

Speed 1/min : 400
Del.quantity cm3/ : 19.0...25.0
1000H.: (-)

Remarks:

Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 7.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 350

C-rod trav.mm : 6.90...7.10

C-rod trav.mm : 2.00

Speed 1/min : 360...400

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.20

Speed 1/min : 740...750

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 130.0...150.0

1000H.: (126.0...154.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MTU 39.7 D
Edition : 4.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 402 430 011
Injection pump
Pump designation : PE12ZW160/12ORS1029/
11
EP type number : 0 412 460 002
Governor
Governor design. : RQUV750ZWA53R
Governor no. : 0 422 409 031

Customer-spec. information
Customer : MTU

Engine : 396

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 40...45
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 027

Outside diameter
x Wall thickness
x Length mm : 8,00X2,00X1500

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Prestroke mm : 2.50...2.60
: (2.45...2.65)
Contr.-rod trav.mm: 12.0
Cam sequence : 12-9-4-5-8-11-2-3-10
-7-6-1

SD ang. spacing°CS: 0-15-60-75-120-135-
180-195-240-255-300-
315
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 18.00

Del.quantity cm3/ : 51.3...52.3

100H.: (51.0...52.6)

Dispersion cm3/ : 2.2

100H.: (3.3)

2nd speed 1/min: 600
Contr.-rod trav. m: 9.00
Del.quantity cm3/ : 14.0...16.0
100H.: (13.5...16.5)
Dispersion cm3/ : 1.2
100H.: (1.8)
3rd speed 1/min: 300
Contr.-rod trav.mm: 9.00
Del.quantity cm3/ : 7.2...9.2
100H.: (6.7...9.7)
Dispersion cm3/ : 1.1
100H.: (1.6)

SLEEVE POSITION

Control-lever position
Degree: 49...50
Speed 1/min: 750
Contr.-rod travelmm: 18.00

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 67,5...70,5

Testing:
1st c-rod trav.mm : 18.00
Speed 1/min : 750
2nd c-rod trav.mm : 5.00
Speed 1/min : 780...790
3rd c-rod trav.mm : 0...0.01
Speed 1/min : 792...805

Remarks:

Acceleration from start to full load
with n = 170...250 min.. -1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,1 D
Edition : 02.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 402 646 844
Injection pump
Pump designation : PE6P120A72ORS7017
EP type number : 0 412 626 818
Governor
Governor design. : RQV200...1000PAS39-7
Governor no. : 0 421 813 631

Customer-spec. information
Customer : SAAB-SCANIA

Engine : DSC 11 12

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 14.50...14.60

Del.quantity cm3/ : 22.0...22.2

100H.: (21.7...22.5)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm3/ : 1.8...2.2

100H.: (1.5...2.5)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.20...1.60

2nd speed 1/min: 350

Sleeve travel mm: 2.40...3.00

3rd speed 1/min: 650

Sleeve travel mm: 4.50...5.10

4th speed 1/min: 1045

Sleeve travel mm: 8.40...8.60

5th speed 1/min: 1165

Sleeve travel mm: 10.00...10.40

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1050

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 220.0...222.0

1000H.: (217.0...225.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

Testing:

1st c-rod trav.mm : 13.50

Speed 1/min : 1040...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1150...1180

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 7...15

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.80

Speed 1/min : 225

C-rod trav.mm : 5.30...5.50

C-rod trav.mm : 2.00

Speed 1/min : 370...430

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 14.50...14.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 12.40...12.50

2nd pressure hPa : 480

C-rod trav.mm : 14.10...14.20

3rd pressure hPa : 285

C-rod trav.mm : 13.00...13.20

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 1000

Del.quantity cm3/ : 210.0...218.0

1000H.: (208.0...220.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 169.0...173.0

1000H.: (167.0...175.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 13.50
Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 240.0...290.0
1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 225
Contr.-rod trav.mm: 5.30...5.50
Del.quantity cm3/ : 18.0...22.0
1000H.: (15.0...25.0)
Dispersion cm3/ : 3.00
1000H.: (6.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROB0 diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on August 20, 1987.
Dumper

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,1 C
 Edition : 02.11.87
 Superceeded : 20.8.87
 Calibrating oil : ISO-4113
 Combination no. : 0 402 646 845
 Injection pump
 Pump designation : PE6P120A72ORS7139
 EP type number : 0 412 626 819
 Governor
 Governor design. : RQV200...1000PA725-2
 Governor no. : 0 421 813 632

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DSC11 13

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1,50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

 Contr.-rod trav.mm: 15.20...15.30

 Del.quantity cm3/ : 23.6...23.8

 100H.: (23.3...24.1)

 Dispersion cm3/ : 0.6

 100H.: (0.9)

2nd speed 1/min: 225.0
 Contr.-rod trav. m: 5.5...5.7
 Del.quantity cm3/ : 1.8...2.2
 100H.: (1.5...2.5)
 Dispersion cm3/ : 0.3
 100H.: (0.6)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 225
 Sleeve travel mm: 1.20...1.60
 2nd speed 1/min: 350
 Sleeve travel mm: 2.40...3.00
 3rd speed 1/min: 650
 Sleeve travel mm: 4.50...5.10
 4th speed 1/min: 1045
 Sleeve travel mm: 8.40...8.60
 5th speed 1/min: 1170
 Sleeve travel mm: 10.10...10.50

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 1040
 Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 700
 Charge press. hPa : 900
 Del.quantity cm3/ : 236.0...238.0
 1000H.: (233.0...241.0)
 Dispersion cm3/ : 6.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 59...67

Testing:

1st c-rod trav.mm : 14.20
Speed 1/min : 1040...1050
2nd c-rod trav.mm : 4.00
Speed 1/min : 1165...1195
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 7...15

Testing:

Speed 1/min : 100
C-rod trav.mm min : 7.00
Speed 1/min : 225
C-rod trav.mm : 5.50...5.70
C-rod trav.mm : 2.00
Speed 1/min : 360...420

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 15.20...15.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.40...12.50
2nd pressure hPa : 535
C-rod trav.mm : 14.60...14.70
3rd pressure hPa : 290
C-rod trav.mm : 13.10...13.30

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900
Speed 1/min : 1000
Del.quantity cm3/ : 226.0...234.0
1000H.: (224.0...236.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 169.0...173.0
1000H.: (167.0...175.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 14.20
Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 240.0...290.0
1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 225
Contr.-rod trav.mm: 5.50...5.70
Del.quantity cm3/ : 18.0...22.0
1000H.: (15.0...25.0)
Dispersion cm3/ : 3.00
1000H.: (6.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without R0B0 diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on August 20, 1987.
Start of delivery - engine: 15° before
TDC
Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 E 1
 Edition : 09.03.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 402 648 831
 Injection pump
 Pump designation : PE8P120A32OLS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RQV350..10S0PA842-2
 Governor no. : 0 421 813 589

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Contr.-rod trav.mm: 20.00...21.00
 Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 600

 Contr.-rod trav.mm: 14.50...14.70

 Del.quantity cm3/ : 21.2...21.4

 100H.: (20.9...21.7)

 Dispersion cm3/ : 0.5

 100H.: (0.9)

2nd speed 1/min: 350.0
 Contr.-rod trav. m: 5.7...5.9
 Del.quantity cm3/ : 1.6...2.2
 100H.: (1.3...2.5)
 Dispersion cm3/ : 0.6
 100H.: (1.0)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350
 Sleeve travel mm: 1.90...2.10
 2nd speed 1/min: 700
 Sleeve travel mm: 4.00...4.40
 3rd speed 1/min: 1100
 Sleeve travel mm: 6.80...7.20
 4th speed 1/min: 1200
 Sleeve travel mm: 8.30...8.70

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 1150
 Contr.-rod travelmm: 16.50...18.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600
Charge press. hPa : 750
Del.quantity cm3/ : 212.0...214.0
1000H.: (209.0...217.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 58...66

Testing:
1st c-rod trav.mm : 14.20
Speed 1/min : 1090...1100
2nd c-rod trav.mm : 4.00
Speed 1/min : 1175...1205
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever
position degrees: 10...18

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.40
Speed 1/min : 350
C-rod trav.mm : 5.70...5.90

CONSTANT REGULATION

Speed 1/min : 350...550

TORQUE CONTROL

2nd speed 1/min : 1050
C-rod trav.mm : 15.20...15.40
3rd speed 1/min : 975
C-rod trav.mm : 15.40...15.60

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 600
Pressure hPa : 750
Contr.-rod trav.mm: 14.50...14.70

Measurement
Speed 1/min : 600

1st pressure hPa : 400
C-rod trav.mm : 12.20...12.40
2nd pressure hPa : 550
C-rod trav.mm : 13.60...13.80
3rd pressure hPa : 900
C-rod trav.mm : 14.70...14.80
4th pressure hPa : 1250

C-rod trav.mm : 15.50...15.70
5th pressure hPa : 150
C-rod trav.mm : 11.20...11.40

SWITCH-OVER POINT

Speed 1/min : 270 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1250
Speed 1/min : 1050
Del.quantity cm3/ : 227.0...230.0
1000H.: (224.0...233.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1250
Speed 1/min : 900
Del.quantity cm3/ : 238.0...242.0
1000H.: (235.0...245.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1250
Speed 1/min : 1050
Del.quantity cm3/ : 156.0...159.0
1000H.: (153.0...162.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 150.0...152.0
1000H.: (147.0...155.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 14.20
Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 240.0...260.0
1000H.: (236.0...264.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 E
Edition : 02.11.87
Superceeded : 9.3.87
Calibrating oil : ISO-4113

Combination no. : 0 402 648 831

Injection pump
Pump designation : PE8P120A320LS7801-1
EP type number : 0 412 628 818
Governor
Governor design. : RQV350..1050PA842-3
Governor no. : 0 421 813 622

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 320.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
Contr.-rod trav.mm: 20.00...21.00
Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing^oCS: 0-45-90-135-180-225-

270-315

Tolerance + - ^o : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 14.50...14.70

Del.quantity cm3/ : 21.2...21.4

100H.: (20.9...21.7)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.7...5.9

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.90...2.10

2nd speed 1/min: 700

Sleeve travel mm: 4.00...4.40

3rd speed 1/min: 1100

Sleeve travel mm: 6.80...7.20

4th speed 1/min: 1200

Sleeve travel mm: 8.30...8.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Contr.-rod travelmm: 16.50...18.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600
Charge press. hPa : 750
Del.quantity cm3/ : 212.0...214.0
 1000H.: (209.0...217.0)
Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

Testing:

1st c-rod trav.mm : 14.20

Speed 1/min : 1090...1100

2nd c-rod trav.mm : 4.00

Speed 1/min : 1175...1205

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever

position degrees: 10...18

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.40

Speed 1/min : 350

C-rod trav.mm : 5.70...5.90

CONSTANT REGULATION

Speed 1/min : 350...550

TORQUE CONTROL

2nd speed 1/min : 1050

C-rod trav.mm : 15.20...15.40

3rd speed 1/min : 975

C-rod trav.mm : 15.40...15.60

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 600

Pressure hPa : 750

Contr.-rod trav.mm: 14.50...14.70

Measurement

Speed 1/min : 600

1st pressure hPa : 400

C-rod trav.mm : 12.20...12.40

2nd pressure hPa : 550

C-rod trav.mm : 13.60...13.80

3rd pressure hPa : 900

C-rod trav.mm : 14.70...14.80

4th pressure hPa : 1250

C-rod trav.mm : 15.50...15.70
Sth pressure hPa : 150
C-rod trav.mm : 11.20...11.40

SWITCH-OVER POINT

Speed 1/min : 270 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1250
Speed 1/min : 1050
Del.quantity cm3/ : 227.0...230.0
1000H.: (224.0...233.0)

Dispersion cm3/ : 8.00
1000H.: (12.0)

Charge press. hPa : 1250
Speed 1/min : 900
Del.quantity cm3/ : 238.0...242.0
1000H.: (235.0...245.0)

Dispersion cm3/ : 8.00
1000H.: (12.0)

Charge press. hPa : 1250
Speed 1/min : 1050
Del.quantity cm3/ : 156.0...159.0
1000H.: (153.0...162.0)

Dispersion cm3/ : 8.00
1000H.: (12.0)

Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 150.0...152.0
1000H.: (147.0...155.0)

Dispersion cm3/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 14.20
Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 240.0...260.0
1000H.: (236.0...264.0)

Remarks:

;

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,0 H1
Edition : 02.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 402 648 836

Injection pump
Pump designation : PE8P120A920/4LS7125T
EP type number : 0 412 628 824
Governor
Governor design. : RQV200...950PA736-4
Governor no. : 0 421 813 646

Customer-spec. information
Customer : SAAB-SCANIA

Engine : DSC14 03 L09,L10

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 2- 7- 3- 4- 5-
6- 8

SD ang. spacing^oCS: 0-45-90-135-180-225-
270-315
Tolerance + - ^o : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.50...13.60

Del.quantity cm³/ : 21.4...21.6

100H.: (21.1...21.9)

Dispersion cm³/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 4.9...5.1

Del.quantity cm³/ : 1.6...2.0

100H.: (1.4...2.2)

Dispersion cm³/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.10...1.50

2nd speed 1/min: 350

Sleeve travel mm: 2.30...2.90

3rd speed 1/min: 650

Sleeve travel mm: 4.30...4.90

4th speed 1/min: 995

Sleeve travel mm: 7.50...7.70

5th speed 1/min: 1125

Sleeve travel mm: 9.00...9.40

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1070

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm³/ : 214.0...216.0

1000H.: (211.0...219.0)

Dispersion cm³/ : 6.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 54...62

Testing:

1st c-rod trav.mm : 12.50

Speed 1/min : 990...1000

2nd c-rod trav.mm : 4.00

Speed 1/min : 1110...1140

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 6...14

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.40

Speed 1/min : 225

C-rod trav.mm : 4.90...5.10

C-rod trav.mm : 2.00

Speed 1/min : 340...400

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 13.50...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.70...10.80

2nd pressure hPa : 445

C-rod trav.mm : 12.90...13.00

3rd pressure hPa : 325

C-rod trav.mm : 11.40...11.60

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 950

Del.quantity cm³/ : 203.0...211.0

1000H.: (201.0...213.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm³/ : 138.0...142.0
1000H.: (136.0...144.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 12.50
Speed 1/min : 990...1000

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 240.0...290.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 225
Contr.-rod trav.mm: 4.90...5.10
Del.quantity cm³/ : 16.0...20.0
1000H.: (14.0...22.0)
Dispersion cm³/ : 3.00
1000H.: (6.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on August 20, 1987.
Start of delivery - engine: 16° before
TDC
Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 L 1
Edition : 02.11.87
Superceeded : 27.3.87
Calibrating oil : ISO-4113

Combination no. : 0 402 649 801

Injection pump
Pump designation : PE10P120A320LS7809-1
EP type number : 0 412 629 801
Governor
Governor design. : RQ300/1050PA717-1
Governor no. : 0 421 801 396

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM443 LA

1st version kW : 401.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 130...150

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Contr.-rod trav.mm: 20.00...21.00
Cam sequence : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

SD ang. spacing°CS: 0-45-72-117-144-189-
 216-261-288-333

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 14.70...14.90

Del.quantity cm3/ : 21.9...22.1

100H.: (21.6...22.4)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.6...6.8

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 2.80...3.00

2nd speed 1/min: 600

Sleeve travel mm: 6.00...6.20

3rd speed 1/min: 900

Sleeve travel mm: 6.10...6.30

4th speed 1/min: 1000

Sleeve travel mm: 6.30...6.40

5th speed 1/min: 1150

Sleeve travel mm: 9.30...9.70

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 600
Charge press. hPa : 900
Del.quantity cm3/ : 219.0...221.0
1000H.: (216.0...224.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:
Speed 1/min : 600
Contr.-rod trav.mm: 20.0

Testing:
1st c-rod trav.mm : 14.20
Speed 1/min : 1095...1110
2nd c-rod trav.mm : 4.00
Speed 1/min : 1150...1180
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 6.7

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.30
Speed 1/min : 300
C-rod trav.mm : 6.60...6.80
C-rod trav.mm : 2.00
Speed 1/min : 380...420

TORQUE CONTROL

2nd speed 1/min : 1050
C-rod trav.mm : 15.20...15.40
3rd speed 1/min : 800
C-rod trav.mm : 15.50...15.70

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 600
Pressure hPa : 900
Contr.-rod trav.mm: 14.70...14.90

Measurement
Speed 1/min : 600

1st pressure hPa : 400
C-rod trav.mm : 12.10...12.30
2nd pressure hPa : 600

F21

C-rod trav.mm : 13.60...13.80
3rd pressure hPa : 960
C-rod trav.mm : 14.80...14.90
4th pressure hPa : 1100
C-rod trav.mm : 15.20...15.40

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1300
Speed 1/min : 1050
Del.quantity cm3/ : 229.0...232.0
1000H.: (226.0...235.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1300
Speed 1/min : 800
Del.quantity cm3/ : 234.0...238.0
1000H.: (231.0...241.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 133.0...135.0
1000H.: (130.0...138.0)
Dispersion cm3/ : 8.00
1000H.: (-)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 14.20
Speed 1/min : 1095...1110

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 230.0...250.0
1000H.: (226.0...254.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 G 1
 Edition : 02.11.87
 Superceeded : 1.9.87
 Calibrating oil : ISO-4113
 Combination no. : 0 402 678 803
 Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RSV350...750POA825-3
 Governor no. : 0 421 833 260

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442A

1st version kW : 240.0
 Speed 1/min: 1500

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (4.15...5.35)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
4- 1

SD ang. spacing^oCS: 0-45-90-135-180-225-

270-315
Tolerance + - ^o : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 15.10...15.20

Del.quantity cm3/ : 23.3...23.5

100H.: (23.0...23.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.2...5.4

Del.quantity cm3/ : 1.6...2.2
100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 233.0...235.0
1000H.: (230.0...238.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 24...32

Testing:

F23

1st c-rod trav.mm : 14.10

Speed 1/min : 750...755

2nd c-rod trav.mm : 4.00

Speed 1/min : 775...788

4th speed 1/min : 1400

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 10...18

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 5.3

Testing:

Speed 1/min : 100

C-rod trav.mm min : 18.00

Speed 1/min : 350

C-rod trav.mm : 5.20...5.40

C-rod trav.mm : 2.00

Speed 1/min : 350...410

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

2nd speed 1/min : 900

C-rod trav.mm : 13.20...13.40

3rd speed 1/min : 1000

C-rod trav.mm : 12.40...12.60

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 600

Del.quantity cm3/ : 233.0...239.0
1000H.: (230.0...242.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 230.0...250.0
1000H.: (226.0...254.0)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 6.1 N 8
Edition : 02.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 403 446 166
Injection pump
Pump designation : PES6MW100/72ORS1133
EP type number : 0 413 406 126
Governor
Governor design. : RQ325...1325MW65
Governor no. : 0 420 082 018

Customer-spec. information
Customer : KHD

Engine : BF 6L 913 BW

1st version kW : 124.0
Speed 1/min: 2650

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1325

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 10.1...10.3

100H.: (9.9...10.5)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 7.0...7.1

Del.quantity cm3/ : 1.1...1.5

100H.: (0.9...1.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 700

Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1325

Charge press. hPa : 700

Del.quantity cm3/ : 101.0...103.0

1000H.: (99.0...105.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 26...34

Setting point:

Speed 1/min : 700

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1375...1385

2nd c-rod trav.mm : 4.00

Speed 1/min : 1445...1475

3rd c-rod trav.mm : 4.00

4th speed 1/min : 1550
C-rod trav.mm : 0.10...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 8...16
Setting point w/out aux. spring
Speed 1/min : 325
Contr.-rod trav.mm: 7.0

Testing:

Speed 1/min : 100
C-rod trav.mm min : 8.60
Speed 1/min : 325
C-rod trav.mm : 7.00...7.10

CONSTANT REGULATION

Speed 1/min : 340...450

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.50...9.60
2nd pressure hPa : 350
C-rod trav.mm : 10.10...10.40
3rd pressure hPa : 450
C-rod trav.mm : 10.70...10.80

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700
Speed 1/min : 850
Del.quantity cm3/ : 93.0...97.0
1000H.: (91.0...99.0)
Dispersion cm3/ : 3.50
1000H.: (7.00)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 57.0...59.0
1000H.: (55.0...61.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 100

ROTATIONAL-SPEED LIMITATION

F25

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00
Speed 1/min : 1375...1385

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 120.0...140.0
1000H.: (117.0...143.0)

LOW IDLE

Speed 1/min : 325
Contr.-rod trav.mm: 7.00...7.10
Del.quantity cm3/ : 11.0...15.0
1000H.: (9.0...17.0)
Dispersion cm3/ : 3.50
1000H.: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 6,1 P 3
Edition : 06.11.87
Superceeded : 12.85
Calibrating oil : ISO-4113

Combination no. : 0 403 446 167

Injection pump
Pump designation : PES6MW100/32ORS1136
EP type number : 0 413 406 128
Governor
Governor design. : RQV350...1100MW54-2
Governor no. : 0 420 083 096

Customer-spec. information
Customer : VOLVO

Engine : TD 61

1st version kW : 111.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - ⁹ : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.40...12.50

Del.quantity cm3/ : 11.0...11.2

100H.: (10.8...11.4)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.3...6.4

Del.quantity cm3/ : 1.6...2.0

100H.: (1.4...2.2)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 700

Del.quantity cm3/ : 110.0...112.0

1000H.: (108.0...114.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 44...52

Testing:

1st c-rod trav.mm : 11.40

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1200...1230

4th speed 1/min : 1350

C-rod trav.mm : 0.10...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 12...20

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 6.3

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.80

Speed 1/min : 350

C-rod trav.mm : 6.30...6.40

CONSTANT REGULATION

Speed 1/min : 370...450

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 480

Contr.-rod trav.mm: 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.90...11.00

2nd pressure hPa : 340

C-rod trav.mm : 11.10...11.40

3rd pressure hPa : 700

C-rod trav.mm : 12.40...12.50

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 1000

Del.quantity cm3/ : 111.0...115.0

1000H.: (109.0...117.0)

Dispersion cm3/ : 3.50

1000H.: (7.00)

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm3/ : 82.0...84.0

1000H.: (80.0...86.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 100

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.40

Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 140.0...160.0

1000H.: (137.0...163.0)

Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 6.30...6.40

Del.quantity cm3/ : 16.0...20.0

1000H.: (14.0...22.0)

Dispersion cm3/ : 3.50

1000H.: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 26
 Edition : 02.11.87
 Superseded : 10.08.87
 Calibrating oil : ISO-4113
 Combination no. : 0 403 446 177
 Injection pump
 Pump designation : PES6MW100/72ORS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1300MW48
 Governor no. : 0 420 083 066

Customer-spec. information
 Customer : DB

Engine : OM366A

1st version kW : 125.0
 Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 8.2...8.4

100H.: (8.0...8.6)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.8...7.9

Del.quantity cm3/ : 1.0...1.4

100H.: (0.9...1.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1340

Sleeve travel mm: 8.50...8.70

2nd speed 1/min: 1450

Sleeve travel mm: 9.30...9.70

3rd speed 1/min: 500

Sleeve travel mm: 2.70...3.30

4th speed 1/min: 300

Sleeve travel mm: 1.20...1.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1350

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Del.quantity cm3/ : 82.5...84.5

1000H.: (80.5...86.5)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 50...58

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1425...1455

4th speed 1/min : 1550

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 18...26

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 7.8

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.70

Speed 1/min : 300

C-rod trav.mm : 7.80...7.90

CONSTANT REGULATION

Speed 1/min : 330...500

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 11.00...11.10

2nd speed 1/min : 800

C-rod trav.mm : 11.80...12.00

3rd speed 1/min : 585

C-rod trav.mm : 12.00...12.20

4th speed 1/min : 1100

C-rod trav.mm : 11.00...11.10

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 800

Del.quantity cm3/ : 82.0...84.0

1000H.: (80.0...86.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Speed 1/min : 585

Del.quantity cm3/ : 77.5...80.5

1000H.: (75.0...83.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00
Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 80.0...90.0
1000H.: (77.0...93.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 7.80...7.90
Del.quantity cm³/ : 10.0...14.0
1000H.: (9.0...15.0)
Dispersion cm³/ : 3.50
1000H.: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 27
 Edition : 24.07.87
 Superceeded : 13.05.87
 Calibrating oil : ISO-4113
 Combination no. : 0 403 446 179
 Injection pump
 Pump designation : PES6MW100/72ORS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1300MW74
 Governor no. : 0 420 083 112

Customer-spec. information
 Customer : MBB

Engine : OM 366 LA

1st version kW : 127.0
 Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 7.6...7.8

100H.: (7.4...8.0)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.8...7.9

Del.quantity cm3/ : 1.0...1.4

100H.: (0.9...1.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1340

Sleeve travel mm: 8.50...8.70

2nd speed 1/min: 1450

Sleeve travel mm: 9.50...9.70

3rd speed 1/min: 700

Sleeve travel mm: 3.90...4.50

4th speed 1/min: 300

Sleeve travel mm: 1.30...1.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1335

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Del.quantity cm3/ : 76.0...78.0

1000H.: (74.0...80.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

G05

Control-lever
position degrees: 50...58

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1425...1455

4th speed 1/min : 1550

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 18...26

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 7.8

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.70

Speed 1/min : 300

C-rod trav.mm : 7.80...7.90

CONSTANT REGULATION

Speed 1/min : 330...600

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 11.00...11.10

2nd speed 1/min : 750

C-rod trav.mm : 11.70...11.80

3rd speed 1/min : 1125

C-rod trav.mm : 11.40...11.50

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750

Del.quantity cm3/ : 68.0...70.0

1000H.: (65.0...73.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00

Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 80.0...90.0
1000H.: (77.0...93.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 7.80...7.90
Del.quantity cm3/ : 10.0...14.0
1000H.: (9.0...15.0)
Dispersion cm3/ : 3.50
1000H.: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RVI 8,8 K 6
 Edition : 5.11.86
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 403 446 180
 Injection pump
 Pump designation : PES6MW100/32ORS1016
 EP type number : 0 413 406 010
 Governor
 Governor design. : RQV300...1300MW25-6
 Governor no. : 0 420 083 115

Customer-spec. information
 Customer : RVI

Engine : MIDR-062-12-I

1st version kW : 130.0
 Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 021

Inlet press., bar : 2.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 173...176

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Contr.-rod trav.mm: 9.0...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.50...11.60

Del.quantity cm3/ : 9.1...9.3

100H.: (8.9...9.5)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.80...5.90

Del.quantity cm3/ : 0.9...1.35

100H.: (0.7...1.6)

Dispersion cm3/ : 0.35

100H.: (0.55)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1300

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm3/ : 91.0...93.0

1000H.: (89.5...95.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 61...69

Testing:

1st c-rod trav.mm : 10.50

Speed 1/min : 1350...1370

2nd c-rod trav.mm : 4.30

Speed 1/min : 1480...1510

4th speed 1/min : 1600

C-rod trav.mm : 1.40...0.40

LOWEST RATED SPEED I

G08

Control-lever

position degrees: 10...18

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 5.80...5.90

Speed 1/min : 200

C-rod trav.mm max : 3.70

CONSTANT REGULATION

Speed 1/min : 325...550

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 220

Contr.-rod trav.mm: 9.90...10.00

Measurement

Speed 1/min : 500

1st pressure hPa : 700

C-rod trav.mm : 11.50...11.60

2nd pressure hPa : -

C-rod trav.mm : 9.30...9.40

3rd pressure hPa : 265

C-rod trav.mm : 10.80...11.10

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 900

Del.quantity cm3/ : 88.0...92.0

1000H.: (86.0...94.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 48.0...50.0

1000H.: (46.0...52.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.50

Speed 1/min : 1350...1370

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 100.0...110.0
1000H.: (97.0...113.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 5.80...5.90
Del.quantity cm3/ : 9.50...13.50
1000H.: (7.00...16.00)
Dispersion cm3/ : 3.50
1000H.: (5.00)

Remarks:

:

Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R22
Edition : 02.11.87
Superceeded : 10.08.87
Calibrating oil : ISO-4113

Combination no. : 0 403 446 192

Injection pump
Pump designation : PES6MW100/32ORS1112
EP type number : 0 413 406 108
Governor
Governor design. : RQV350...1300MW72-2
Governor no. : 0 420 083 141

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466

1st version kW : 136.0
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 10.00...10.10

Del.quantity cm3/ : 8.6...8.8

100H.: (8.4...9.0)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.4...6.5

Del.quantity cm3/ : 1.9...2.3

100H.: (1.6...2.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1350

Sleeve travel mm: 8.30...8.50

2nd speed 1/min: 1460

Sleeve travel mm: 9.10...9.50

3rd speed 1/min: 550

Sleeve travel mm: 3.10...3.70

4th speed 1/min: 350

Sleeve travel mm: 1.30...1.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1510

Contr.-rod travelmm: 6.60...9.40

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Del.quantity cm3/ : 86.0...88.0

1000H.: (84.0...90.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 45...50

Testing:
1st c-rod trav.mm : 9.00
Speed 1/min : 1360...1380
2nd c-rod trav.mm : 4.00
Speed 1/min : 1460...1470
4th speed 1/min : 1550
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Control-lever
position degrees: 10...18
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 6.4

Testing:
Speed 1/min : 100
C-rod trav.mm min : 9.00
Speed 1/min : 350
C-rod trav.mm : 6.40...6.50

CONSTANT REGULATION
Speed 1/min : 300...450

SWITCH-OVER POINT

Speed 1/min : 220 (280)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 1300
Del.quantity cm3/ : 88.0...92.0
1000H.: (86.0...94.0)
Dispersion cm3/ : 5.00
1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.00
Speed 1/min : 1360...1380

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...180.0
1000H.: (137.0...183.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 6.40...6.50
Del.quantity cm3/ : 19.0...23.0
1000H.: (16.5...25.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than $n = 500$ 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R21
Edition : 02.11.87
Superceeded : 31.07.87
Calibrating oil : ISO-4113
Combination no. : 0 403 446 195
Injection pump
Pump designation : PES6MW100/32ORS1112
EP type number : 0 413 406 108
Governor
Governor design. : RQV350...1200MW46-13
Governer no. : 0 420 083 144

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 180.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 12.30...12.40

Del.quantity cm3/ : 11.7...11.9

100H.: (11.5...12.1)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.3...6.4

Del.quantity cm3/ : 1.9...2.3

100H.: (1.6...2.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1350

Sleeve travel mm: 8.30...8.50

2nd speed 1/min: 1460

Sleeve travel mm: 9.10...9.50

3rd speed 1/min: 550

Sleeve travel mm: 3.10...3.70

4th speed 1/min: 350

Sleeve travel mm: 1.30...1.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1380

Cont.-rod travelmm: 6.70...9.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Charge press. hPa : 800

Del.quantity cm3/ : 117.5...119.5

1000H.: (115.5...121.5)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 43...48

Testing:
1st c-rod trav.mm : 11.30
Speed 1/min : 1265...1285
2nd c-rod trav.mm : 4.00
Speed 1/min : 1395...1405
4th speed 1/min : 1500
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 12...20
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 6.3

Testing:
Speed 1/min : 100
C-rod trav.mm min : 9.00
Speed 1/min : 350
C-rod trav.mm : 6.30...6.40

CONSTANT REGULATION

Speed 1/min : 360...450

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 190
Contr.-rod trav.mm: 11.20...11.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.60...10.70
2nd pressure hPa : 360
C-rod trav.mm : 11.90...12.20
3rd pressure hPa : 800
C-rod trav.mm : 12.30...12.40

SWITCH-OVER POINT

Speed 1/min : 280 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 800
Speed 1/min : 1200

Del.quantity cm3/ : 120.0...124.0
1000H.: (118.0...126.0)
Dispersion cm3/ : 5.00
1000H.: (7.00)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 86.0...88.0
1000H.: (84.0...90.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.30
Speed 1/min : 1265...1285

STARTING FUEL DELIVERY

Speed 1/min : 100
Del,quantity cm3/ : 140.0...180.0
1000H.: (137.0...183.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 6.30...6.40
Del.quantity cm3/ : 19.0...23.0
1000H.: (16.5...25.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R24
Edition : 02.11.87
Superceeded : 10.08.87
Calibrating oil : ISO-4113

Combination no. : 0 403 446 197

Injection pump
Pump designation : PES6MW100/32ORS1112
EP type number : 0 413 406 108
Governor
Governor design. : RQV350...1200MW46-15
Governor no. : 0 420 083 146

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 158.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05
: (3.90...4.10)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 9.9...10.1

100H.: (9.7...10.3)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.3...6.4

Del.quantity cm3/ : 1.9...2.3

100H.: (1.6...2.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1350

Sleeve travel mm: 8.30...8.50

2nd speed 1/min: 1460

Sleeve travel mm: 9.10...9.50

3rd speed 1/min: 550

Sleeve travel mm: 3.10...3.70

4th speed 1/min: 350

Sleeve travel mm: 1.30...1.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1380

Contr.-rod travelmm: 6.70...9.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Charge press. hPa : 800

Del.quantity cm3/ : 99.0...101.0

1000H.: (97.0...103.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 43...48

Testing:

1st c-rod trav.mm : 10.00
Speed 1/min : 1270...1290
2nd c-rod trav.mm : 4.00
Speed 1/min : 1380...1390
4th speed 1/min : 1500
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 10...18
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 6.3

Testing:

Speed 1/min : 100
C-rod trav.mm min : 9.00
Speed 1/min : 350
C-rod trav.mm : 6.30...6.40

CONSTANT REGULATION

Speed 1/min : 360...450

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 200
Contr.-rod trav.mm: 10.70...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.40...10.50
2nd pressure hPa : 280
C-rod trav.mm : 10.80...11.10
3rd pressure hPa : 800
C-rod trav.mm : 11.00...11.10

SWITCH-OVER POINT

Speed 1/min : 280 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 800
Speed 1/min : 1200

Del.quantity cm3/ : 101.0...105.0
1000H.: (99.0...107.0)
Dispersion cm3/ : 5.00
1000H.: (7.00)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 84.0...86.0
1000H.: (82.0...88.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.00
Speed 1/min : 1270...1290

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...180.0
1000H.: (137.0...183.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 6.30...6.40
Del.quantity cm3/ : 19.0...23.0
1000H.: (16.5...25.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 13.4 E1
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 403 548 015
Injection pump
Pump designation : PE8MW100/720LS1149
EP type number : 0 413 508 105
Governor
Governor design. : RQV450...1150MW70
Governor no. : 0 420 083 103

Customer-spec. information
Customer : KHD

Engine : F 8L 513

1st version kW : 155.0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
: (3.05...3.25)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 8- 7- 2- 6- 5-
4- 3

SD ang. spacing°CS: 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 10.30...10.40

Del.quantity cm3/ : 9.0...9.2

100H.: (8.8...9.4)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 450.0

Contr.-rod trav. m: 6.1...6.3

Del.quantity cm3/ : 1.3...1.7

100H.: (1.1...2.0)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1170

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm3/ : 90.0...92.0

1000H.: (88.0...94.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 52...60

Testing:

1st c-rod trav.mm : 9.30

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.50

Speed 1/min : 1240...1270

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 14...22
Setting point w/out aux. spring
Speed 1/min : 450
Contr.-rod trav.mm: 6.2

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.00
Speed 1/min : 450
C-rod trav.mm : 6.10...6.30

CONSTANT REGULATION
Speed 1/min : 470...570

TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1150
C-rod trav.mm : 10.30...10.40
2nd speed 1/min : 875
C-rod trav.mm : 11.40...11.50
3rd speed 1/min : 1050
C-rod trav.mm : 10.50...10.80

SWITCH-OVER POINT

Speed 1/min : 370 (390)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 875
Del.quantity cm3/ : 101.0...103.0
1000H.: (99.0...105.0)
Dispersion cm3/ : 5.00
1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 9.30
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 130.0...140.0
1000H.: (127.0...143.0)

LOW IDLE

Speed 1/min : 450
Contr.-rod trav.mm: 6.10...6.30
Del.quantity cm3/ : 13.0...17.0
1000H.: (11.0...20.0)

Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 17,4 A
Edition : 02.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 405 638 201

Injection pump
Pump designation : PE8PM120A12ORS7119
EP type number : 0 415 628 201
Governor
Governor design. : RQ350/1150PA791
Governor no. : 0 421 801 340

Customer-spec. information
Customer : PERKINS

Engine : MCY 80

1st version kW : 410.0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 3- 6- 5- 4- 8-
 7- 2

SD ang. spacing⁰CS: 0-45-90-135-180-225-
 270-315
Tolerance + - ⁰ : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 13.60...13.70

Del.quantity cm3/ : 25.7...25.9

100H.: (25.4...26.2)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 4.0...4.2
Del.quantity cm3/ : 1.7...2.3
100H.: (1.4...2.6)
Dispersion cm3/ : 0.8
100H.: (1.2)

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 750
Contr.-rod travelmm: 14.70...16.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1150
Charge press. hPa : 1200
Del.quantity cm3/ : 257.0...259.0
1000H.: (254.0...262.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:
Speed 1/min : 750
Contr.-rod trav.mm: 15.5

Testing:

1st c-rod trav.mm : 12.60
Speed 1/min : 1195...1210

2nd c-rod trav.mm : 4.00
Speed 1/min : 1285...1315
4th speed 1/min : 1400
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 4.1

Testing:

Speed 1/min : 100
C-rod trav.mm min : 5.50
Speed 1/min : 350
C-rod trav.mm : 4.00...4.20
C-rod trav.mm : 2.00
Speed 1/min : 390...430

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 1200
Contr.-rod trav.mm: 13.60...13.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.60...10.80
2nd pressure hPa : 890
C-rod trav.mm : 12.90...13.00
3rd pressure hPa : 590
C-rod trav.mm : 11.30...11.50

SWITCH-OVER POINT

Speed 1/min : 300 (0)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1200
Speed 1/min : 700
Del.quantity cm3/ : 265.0...271.0
1000H.: (262.0...274.0)
Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm3/ : 192.0...196.0
1000H.: (190.0...198.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.60
Speed 1/min : 1195...1210

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 195.0...215.0
1000H.: (192.0...218.0)
Contr.-rod trav.mm: 19.50...21.00

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 B 2
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 9 400 083 452
Injection pump
Pump designation : PES6A100D320/3RS2691
-2
EP type number : 9 410 230 028
Governor
Governor design. : RQV350...1250AB1225R
Governor no. : 9 420 080 224

Customer-spec. information
Customer : CUMMINS

Engine : 6 C 8.3L

1st version kW : 123.0
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max. : 21.00
Difference°CS : 3.00...4.00

BASIC SETTING

1st speed 1/mi: 1250

Contr.-rod trav.mm: 11.20...11.30

Del.quantity cm3/ : 10.3...10.5

100H.: (10.1...10.7)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm3/ : 1.4...1.8

100H.: (1.1...2.0)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1200

Sleeve travel mm: 8.50...8.60

2nd speed 1/min: 900

Sleeve travel mm: 6.10...6.50

3rd speed 1/min: 500

Sleeve travel mm: 4.30...4.70

4th speed 1/min: 350

Sleeve travel mm: 2.20...3.00

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1300

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1250

Del.quantity cm3/ : 103.5...105.5
1000H.: (101.5...107.5)
Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 115...123

Testing:
1st c-rod trav.mm : 10.20
Speed 1/min : 1290...1300
2nd c-rod trav.mm : 4.00
Speed 1/min : 1390...1420
4th speed 1/min : 1500
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Control-lever
position degrees: 67...75

Testing:
Speed 1/min : 100
C-rod trav.mm min : 10.00
Speed 1/min : 350
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 400...460

CONSTANT REGULATION
Speed 1/min : 390...460

TORQUE CONTROL
Dimension a mm : ?
Torque-control curve - 1st version
1st speed 1/min : 1250
C-rod trav.mm : 11.20...11.30
2nd speed 1/min : 500
C-rod trav.mm : 11.80...11.90
3rd speed 1/min : 600
C-rod trav.mm : 11.50...11.70
4th speed 1/min : 750
C-rod trav.mm : 11.30...11.60

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 500
Del.quantity cm3/ : 101.0...104.0
1000H.: (98.5...106.5)
Speed 1/min : 600
Del.quantity cm3/ : 103.5...106.5
1000H.: (101.0...109.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.20
Speed 1/min : 1290...1300

MIDDLE RATED SPEED
Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 168.0...182.0
1000H.: (165.0...185.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.40...5.60
Del.quantity cm3/ : 14.0...18.0
1000H.: (11.5...20.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

:
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

```
Control-lever position
Degree: -1
Speed      17/min: 1540
Cont.-rod travelmm: 8.00...0.00
```

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min : 1300
Charge press. hPa : 600
Del.quantity cm3/ : 94.0...96.0
1000H.: (91.5...98.5)
Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 111...119

Testing:

1st c-rod trav.mm : 11.80
Speed 1/min : 1340...1350
2nd c-rod trav.mm : 4.00
Speed 1/min : 1480...1510
4th speed 1/min : 1600
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 68...76

Testing:

Speed 1/min : 100
C-rod trav.mm min : 10.00
Speed 1/min : 350
C-rod trav.mm : 7.40...7.60
C-rod trav.mm : 2.00
Speed 1/min : 700...760

CONSTANT REGULATION

Speed 1/min : 370...440

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.80...10.90
2nd pressure hPa : 300
C-rod trav.mm : 11.10...11.30
3rd pressure hPa : 400
C-rod trav.mm : 12.30...12.40

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 600
Speed 1/min : 800
Del.quantity cm3/ : 83.5...87.5
1000H.: (81.5...89.5)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 58.5...60.5
1000H.: (56.0...63.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.80
Speed 1/min : 1340...1350

MIDDLE RATED SPEED

Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 180.0...200.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 7.40...7.60
Del.quantity cm3/ : 22.0...26.0
1000H.: (19.5...28.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEZ 6,1 A
Edition : 21.05.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 9 400 085 293
Injection pump
Pump designation : PES6A80D410RS2527
EP type number : 9 400 093 005
Governor
Governor design. : RQV300...1400AB1234L
Governor no. : 9 420 080 241

Customer-spec. information
Customer : DEUTZ ARGENTINA

Engine : F 6 L 913

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 047

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1400

Contr.-rod trav.mm: 12.00...12.10

Del.quantity cm3/ : 6.9...7.0

100H.: (6.7...7.1)

Dispersion cm3/ : 0.2

100H.: (0.4)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 8.4...8.6
Del.quantity cm3/ : 0.8...1.1
100H.: (0.7...1.3)
Dispersion cm3/ : 0.2
100H.: (0.3)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300
Sleeve travel mm: 0.50...1.00
2nd speed 1/min: 600
Sleeve travel mm: 2.70...3.10
3rd speed 1/min: 800
Sleeve travel mm: 4.10...4.50
4th speed 1/min: 1100
Sleeve travel mm: 5.80...6.10
5th speed 1/min: 1485
Sleeve travel mm: 8.40...8.60

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1485
Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1400
Del.quantity cm3/ : 69.0...70.0
1000H.: (67.5...71.5)
Dispersion cm3/ : 2.50
1000H.: (4.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 55...63

Testing:

1st c-rod trav.mm : 11.00
Speed 1/min : 1440...1450
2nd c-rod trav.mm : 4.00
Speed 1/min : 1570...1600
3rd c-rod trav.mm : 4.00
4th speed 1/min : 1700
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 6...14

Testing:

Speed 1/min : 100
C-rod trav.mm min : 7.50
Speed 1/min : 300
C-rod trav.mm : 5.90...6.10
C-rod trav.mm : 2.00
Speed 1/min : 540...600

CONSTANT REGULATION

Speed 1/min : 400...500

TORQUE CONTROL

Dimension a mm : ?
Torque-control curve - 1st version
1st speed 1/min : 1400
C-rod trav.mm : 12.00...12.10
2nd speed 1/min : 500
C-rod trav.mm : 12.90...13.00
3rd speed 1/min : 1000
C-rod trav.mm : 12.70...12.90
4th speed 1/min : 1200
C-rod trav.mm : 12.20...12.50

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 500
Del.quantity cm3/ : 63.0...65.0
1000H.: (61.0...67.0)
Speed 1/min : 1000
Del.quantity cm3/ : 67.0...69.0
1000H.: (65.0...71.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.00
Speed 1/min : 1440...1450

MIDDLE RATED SPEED

Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Contr.-rod trav.mm: 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 4,4 C
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 085 294

Injection pump
Pump designation : PES4A9SD410RS2752
EP type number : 9 400 084 014
Governor
Governor design. : RS350/1300A2B2149-3L
Governor no. : 9 420 083 235

Customer-spec. information
Customer : FORD-FNH

Engine : 4,4 L

1st version kW : 85.0
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
 : (3.10...3.30)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 3- 4- 2

SD ang. spacing⁰CS: 0-90-180-270
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod tray max. : 21.00
Difference⁰ CS : 4.00...5.00

BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 13.00...13.10

Del.quantity cm3/ : 9.6...9.8

100H.: (9.4...10.1)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 5.9...6.1
Del.quantity cm3/ : 1.2...1.6
100H.: (1.0...1.9)
Dispersion cm3/ : 0.3
100H.: (0.5)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Contr.-rod travelmm: 0.30...0.10

Governor-spring reload
Notch setting x : 5.25

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1300
Del.quantity cm3/ : 96.5...98.5
1000H.: (94.0...101.0)
Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version

H02

Control-lever
position degrees: 55...63

Testing:

1st c-rod trav.mm : 12.00
Speed 1/min : 1360...1370
2nd c-rod trav.mm : 4.00
Speed 1/min : 1465...1495
4th speed 1/min : 1600
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I

Control-lever
position degrees: 21...29
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 6.0

Testing:

Speed 1/min : 550
C-rod trav.mm min : 2.70
Speed 1/min : 350
C-rod trav.mm : 5.90...6.10
C-rod trav.mm : 2.00
Speed 1/min : 1340...140
Speed 1/min : 550
C-rod trav.mm max : 3.50

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1300
C-rod trav.mm : 13.00...13.10
2nd speed 1/min : 500
C-rod trav.mm : 13.00...13.20
5th speed 1/min : 400
C-rod trav.mm : 14.40...14.60

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 500
Del.quantity cm3/ : 83.0...87.0
1000H.: (81.0...89.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 12.00
Speed 1/min : 1360...1370

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 150.0...170.0
1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 N 14
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 9 400 085 296
Injection pump
Pump designation : PES6A90D41ORS2293
EP type number : 0 410 896 031
Governor
Governor design. : RQV300...1425AB740-5
L
Governor no. : 9 420 080 249

Customer-spec. information
Customer : DAIMLER-BENZ BRAS.

Engine : OM352

1st version kW : 92.0
Speed 1/min: 2850

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
: (2.10...2.30)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - ^o : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1400

Contr.-rod trav.mm: 9.20...9.30

Del.quantity cm3/ : 5.8...5.9
100H.: (5.6...6.1)

Dispersion cm3/ : 0.3
100H.: (0.5)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 7.4...7.6
Del.quantity cm3/ : 1.0...1.6
100H.: (0.8...1.8)
Dispersion cm3/ : 0.2
100H.: (0.4)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1460
Sleeve travel mm: 8.40...8.60
2nd speed 1/min: 950
Sleeve travel mm: 5.20...5.50
3rd speed 1/min: 775
Sleeve travel mm: 4.10...4.60
4th speed 1/min: 550
Sleeve travel mm: 2.70...3.00
5th speed 1/min: 300
Sleeve travel mm: 0.70...1.20

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1460
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1400
Del.quantity cm3/ : 58.5...59.5
1000H.: (56.5...61.5)
Dispersion cm3/ : 3.00
1000H.: (5.00)

HIGHEST RATED SPEED

H05

1st version
Control-lever
position degrees: 114...122

Testing:
1st c-rod trav.mm : 8.20
Speed 1/min : 1460...1470
2nd c-rod trav.mm : 4.00
Speed 1/min : 1540...1570
4th speed 1/min : 1700
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Control-lever
position degrees: 64...72

Testing:
Speed 1/min : 100
C-rod trav.mm min : 9.00
Speed 1/min : 300
C-rod trav.mm : 7.40...7.60
C-rod trav.mm : 2.00
Speed 1/min : 680...740

CONSTANT REGULATION
Speed 1/min : 320...550

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1400
C-rod trav.mm : 9.20...9.30
2nd speed 1/min : 500
C-rod trav.mm : 10.10...10.20
3rd speed 1/min : 800
C-rod trav.mm : 9.80...10.00
4th speed 1/min : 1000
C-rod trav.mm : 9.40...9.70

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 500
Del.quantity cm3/ : 49.0...51.0
1000H.: (46.5...53.5)
Speed 1/min : 800
Del.quantity cm3/ : 55.0...57.0
1000H.: (52.5...59.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.20

Speed 1/min : 1460...1470

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 71.0...81.0

1000H.: (68.0...84.0)

Contr.-rod trav.mm: 13.90...14.30

Remarks:

APPLICATION :

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0Q11
 Edition : 24.07.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 9 400 087 295
 Injection pump
 Pump designation : PE6P110A32ORS3108Y
 EP type number : 0 411 816 729
 Governor
 Governor design. : RQV250...1100PA589-1
 Governor no. : 9 420 080 166

Customer-spec. information
 Customer : VOLVO

Engine : THD 100 EC

1st version kW : 180.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm3/ : 13.8...14.0

100H.: (13.5...14.3)

Dispersion cm3/ : 0.4

100H.: (0.75)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.0...5.2

Del.quantity cm3/ : 3.2...3.6

100H.: (2.9...3.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500

Sleeve travel mm: 4.10...4.90

3rd speed 1/min: 700

Sleeve travel mm: 6.30...6.70

4th speed 1/min: 950

Sleeve travel mm: 6.30...6.70

5th speed 1/min: 1100

Sleeve travel mm: 7.00...7.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 138.0...140.0

1000H.: (135.0...143.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 55...63

Testing:

1st c-rod trav.mm : 10.10
Speed 1/min : 1140...1150
2nd c-rod trav.mm : 4.00
Speed 1/min : 1205...1235
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 8...16

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.70
Speed 1/min : 250
C-rod trav.mm : 5.00...5.20
C-rod trav.mm : 2.00
Speed 1/min : 345...405

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.60...9.80
2nd pressure hPa : 300
C-rod trav.mm : 9.90...10.00
3rd pressure hPa : 420
C-rod trav.mm : 10.70...10.90

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm3/ : 105.5...108.5
1000H.: (103.0...111.0)

ROTATIONAL-SPEED LIMITATION

1st version

H08

1mm control-rod travel less than

full-load trav.mm: 10.10
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 170.0...200.0
1000H.: (166.0...204.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 5.00...5.20
Del.quantity cm3/ : 32.0...36.0
1000H.: (29.5...38.5)
Dispersion cm3/ : 3.00
1000H.: (6.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet	: CAT 10,5 J
Edition	: 06.11.87
Superceeded	: 24.7.87
Calibrating oil	: ISO-4113
Combination no.	: 9 400 087 348
Injection pump	
Pump designation	: PES6P100A720LS508
EP type number	: 9 400 087 053
Governor	
Governor design.	: RQV350...87SPA798-6
Governer no.	: 9 420 080 236

Customer-spec. information
Customer : CATERPILLAR

Engine : 3306 DINA

```
1st version kW : 87.2
Speed      1/min: 1950
```

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 2...3

```

Prestroke mm      : 3.95...4.05
                   : (3.90...4.10)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence      : 1- 5- 3- 6- 2- 4

```

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + -^o: 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 875

Contr.-rod trav.mm: 8.80...8.90

Del.quantity cm3/ : 7.1...7.3

100H.: (6.9...7.5)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.7...6.9

Del. quantity cm3/ : 1.0...1.4
100H.: (0.7...1.6)

Dispersion cm³/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350
Sleeve travel mm: 1.40...3.00

2nd speed 1/min: 450
Sleeve travel mm: 3.10...3.50

3rd speed 1/min: 650
Sleeve travel mm: 5.60...6.00

4th speed 1/min: 920
Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position
Degree: -1

Speed 17/min: 950

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 875

Del.quantity cm3/ : 71.5...73.5
1000H.: (69.5...75.5)

Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:

1st c-rod trav.mm : 7.80
Speed 1/min : 910...920
2nd c-rod trav.mm : 4.00
Speed 1/min : 950...900
4th speed 1/min : 1050
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 11...19

Testing:

Speed 1/min : 100
C-rod trav.mm min : 8.00
Speed 1/min : 350
C-rod trav.mm : 5.10...5.30
C-rod trav.mm : 2.00
Speed 1/min : 440...500

CONSTANT REGULATION

Speed 1/min : 350...420

TORQUE CONTROL

Dimension a mm : ?
Torque-control curve - 1st version
1st speed 1/min : 875
C-rod trav.mm : 8.80...8.90
2nd speed 1/min : 600
C-rod trav.mm : 9.50...8.60
3rd speed 1/min : 700
C-rod trav.mm : 9.20...9.40
4th speed 1/min : 750
C-rod trav.mm : 9.00...9.30

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 600
Del.quantity cm3/ : 70.0...74.0
1000H.: (68.0...76.0)
Dispersion cm3/ : 5.00
1000H.: (7.)
Speed 1/min : 750
Del.quantity cm3/ : 70.5...74.5
1000H.: (68.5...76.5)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 7.80
Speed 1/min : 910...920

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 165.0...185.0
1000H.: (161.0...189.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.10...5.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 D
Edition : 21.05.87
Superceeded : 15.12.86
Calibrating oil : ISO-4113

Combination no. : 9 400 087 353

Injection pump
Pump designation : PES6P110A72ORS3157
EP type number : 9 400 087 048
Governor
Governor design. : RQV350...1300PA788
Governor no. : 9 420 080 215

Customer-spec. information
Customer : FORD NEW HOLLAND

Engine : 6.6L-TC

1st version kW : 127.0
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 13.20...13.30

Del.quantity cm3/ : 12.8...13.0
 100H.: (12.6...13.2)

Dispersion cm3/ : 0.5
 100H.: (0.9)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 7.9...8.1
Del.quantity cm3/ : 1.9...2.3
 100H.: (1.6...2.5)
Dispersion cm3/ : 0.3
 100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1300
Sleeve travel mm: 7.20...7.30
2nd speed 1/min: 1000
Sleeve travel mm: 5.00...5.30
3rd speed 1/min: 800
Sleeve travel mm: 4.00...4.30
4th speed 1/min: 500
Sleeve travel mm: 2.30...2.70
5th speed 1/min: 350
Sleeve travel mm: 0.60...1.30

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1350
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1300
Charge press. hPa : 900

Del.quantity cm3/ : 128.0...130.0
 1000H.: (126.0...132.0)
Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 60...68

Testing:
1st c-rod trav.mm : 12.20
Speed 1/min : 1360...1370
2nd c-rod trav.mm : 4.00
Speed 1/min : 1500...1530
4th speed 1/min : 1620
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 11...19

Testing:
Speed 1/min : 100
C-rod trav.mm min : 9.50
Speed 1/min : 350
C-rod trav.mm : 7.90...8.10
C-rod trav.mm : 2.00
Speed 1/min : 620...680

CONSTANT REGULATION

Speed 1/min : 370...440

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 11.40...11.50
2nd pressure hPa : 650
C-rod trav.mm : 12.60...12.80
3rd pressure hPa : 530
C-rod trav.mm : 12.00...12.10

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 800

Del.quantity cm3/ : 102.5...106.5

1000H.: (100.5...108.5)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 60.0...62.0

1000H.: (57.0...65.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.20

Speed 1/min : 1360...1370

MIDDLE RATED SPEED

Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 100.0...120.0

1000H.: (96.0...124.0)

Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 7.90...8.10

Del.quantity cm3/ : 19.0...23.0

1000H.: (16.5...25.5)

Dispersion cm3/ : 3.50

1000H.: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 I
Edition : 06.11.87
Superceeded : 24.7.87
Calibrating oil : ISO-4113

Combination no. : 9 400 087 356

Injection pump
Pump designation : PES6P100A72QLS511
EP type number : 9 400 087 059
Governor
Governor design. : RQV350/840...900PA
839
Governor no. : 9 420 080 233

Customer-spec. information
Customer : CATERPILLAR

Engine : 3306 DIT

1st version kW : 207.0
Speed 1/min: 1800

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 2...3

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm3/ : 18.2...18.4

100H.: (18.0...18.7)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.4...6.6

Del.quantity cm3/ : 1.3...1.7

100H.: (1.0...1.9)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 0.50...1.50

2nd speed 1/min: 500

Sleeve travel mm: 2.40...2.60

3rd speed 1/min: 750

Sleeve travel mm: 2.40...2.60

4th speed 1/min: 850

Sleeve travel mm: 4.00...4.50

5th speed 1/min: 950

Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 925

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Del.quantity cm3/ : 182.5...184.5
1000H.: (180.0...187.0)
Dispersion cm3/ : 3.50
1000H.: (6.00)

Generator

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 57...65

Testing:
1st c-rod trav.mm : 11.60
Speed 1/min : 910...920
2nd c-rod trav.mm : 4.00
Speed 1/min : 930...960
4th speed 1/min : 1050
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 5...13

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.00
Speed 1/min : 350
C-rod trav.mm : 4.70...4.90
C-rod trav.mm : 2.00
Speed 1/min : 770...830

SWITCH-OVER POINT

Speed 1/min : 290 (310)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.60
Speed 1/min : 910...920

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 195.0...215.0
1000H.: (191.0...219.0)
Contr.-rod trav.mm: 14.00...15.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 4.70...4.90

Remarks:

APPLICATION

H15

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 7.0 F
Edition : 24.07.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 9 400 087 358
Injection pump
Pump designation : PES4P100A720LS510
EP type number : 9 400 087 058
Governor
Governor design. : RQV350/840...900PA
839
Governor no. : 9 420 080 233

Customer-spec. information
Customer : CATERPILLAR

Engine : 3304 DIT

1st version kW : 149.0
Speed 1/min: 1800

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 2...3

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 13.70...13.80

Del.quantity cm3/ : 20.3...20.5
100H.: (20.0...20.7)

Dispersion cm3/ : 0.3
100H.: (0.6)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 6.4...6.6
Del.quantity cm3/ : 1.3...1.7
100H.: (1.0...1.9)
Dispersion cm3/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 950
Sleeve travel mm: 8.50...8.60
2nd speed 1/min: 350
Sleeve travel mm: 0.50...1.50
3rd speed 1/min: 500
Sleeve travel mm: 2.40...2.60
4th speed 1/min: 750
Sleeve travel mm: 2.40...2.60
5th speed 1/min: 850
Sleeve travel mm: 4.00...4.50

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 925
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 900

Del.quantity cm3/ : 203.0...205.0
1000H.: (200.5...207.5)
Dispersion cm3/ : 3.50
1000H.: (6.00)

Generator

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 58...66

Testing:
1st c-rod trav.mm : 12.70
Speed 1/min : 910...920
2nd c-rod trav.mm : 4.00
Speed 1/min : 940...970
4th speed 1/min : 1050
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 5...13

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.00
Speed 1/min : 350
C-rod trav.mm : 4.70...4.90
C-rod trav.mm : 2.00
Speed 1/min : 770...830

SWITCH-OVER POINT

Speed 1/min : 290 (310)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.70
Speed 1/min : 910...920

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 195.0...215.0
1000H.: (191.0...219.0)
Contr.-rod trav.mm: 14.00...15.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 4.70...4.90

Remarks:

APPLICATION

H17

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 7,0 E
Edition : 5.11.87
Superceeded : 17.11.86
Calibrating oil : ISO-4113
Combination no. : 9 400 087 362
Injection pump
Pump designation : PES4P100A720LS501
EP type number : 9 400 087 051
Governor
Governor design. : RQV350...1100PA828
Governor no. : 9 420 080 232

Customer-spec. information
Customer : CATERPILLAR

Engine : 3304 DIT

1st version kW : 81.3
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.0

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6,00X2,00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 1.50...2.50

Prestroke mm : 3.95...4.05
: (3.90...4.10)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1-3-4-2

SD ang. spacing°CS: 0-90-180-270
Tolerance + - ° : 0.5(0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 10.80...10.90

Del.quantity cm3/ : 13.0...13.2

100H.: (12.8...13.4)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 350

Contr.-rod trav. m: 6.40...6.60

Del.quantity cm3/ : 1.5...1.9

100H.: (1.2...2.1)

Dispersion cm3/ : 0.35

100H.: (0.55)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.30...1.50

2nd speed 1/min: 500

Sleeve travel mm: 2.90...3.20

3rd speed 1/min: 700

Sleeve travel mm: 4.50...4.80

4th speed 1/min: 900

Sleeve travel mm: 6.00...6.20

5th speed 1/min: 1150

Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 600

Del.quantity cm3/ : 130.0...132.0
1000H.: (128.0...134.0)
Dispersion cm3/ : 3.5
1000H.: (6.0)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:
1st c-rod trav.mm : 9.80
Speed 1/min : 1140...1150
2nd c-rod trav.mm : 4.00
Speed 1/min : 1210...1240
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...17

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.00
Speed 1/min : 350
C-rod trav.mm : 5.10...5.30
C-rod trav.mm : 2.00
Speed 1/min : 530...590

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 10.80...10.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.80...9.00
2nd pressure hPa : 310
C-rod trav.mm : 10.40...10.50
3rd pressure hPa : 210
C-rod trav.mm : 9.30...9.50

SWITCH-OVER POINT

Speed 1/min : 270(310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600

H19

Speed 1/min : 700
Del.quantity cm3/ : 123.0...127.0
1000H.: (121.0...129.0)
Dispersion cm3/ : 5.0
1000H.: (7.0)
Charge press. hPa : -
Speed 1/min : 1100
Del.quantity cm3/ : 90.0...92.0
1000H.: (88.0...94.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.80
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 157.0...177.0
1000H.: (153.0...181.0)
Contr.-rod trav.mm: 19.0...21.0

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.10...5.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 G2
 Edition : 12.11.87
 Superceeded : 3.12.86
 Calibrating oil : ISO-4113
 Combination no. : 9 400 087 363
 Injection pump
 Pump designation : PES6P100A72OLS502
 EP type number : 9 400 087 050
 Governor
 Governor design. : RQV350...1100PA828
 Governor no. : 9 420 080 232

Customer-spec. information
 Customer : CATERPILLAR

Engine : 3306 DITA

1st version kW : 173.7
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY
 Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 12.40...12.50

Del.quantity cm3/ : 14.7...14.9

 100H.: (14.4...15.1)

Dispersion cm3/ : 0.3

 100H.: (0.6)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 6.4...6.6
Del.quantity cm3/ : 1.3...1.7
 100H.: (1.0...1.9)
Dispersion cm3/ : 0.3
 100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350
Sleeve travel mm: 1.30...1.50
2nd speed 1/min: 500
Sleeve travel mm: 2.90...3.20
3rd speed 1/min: 700
Sleeve travel mm: 4.50...4.80
4th speed 1/min: 900
Sleeve travel mm: 6.00...6.20
5th speed 1/min: 1150
Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1150
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1100
Charge press. hPa : 500

Del.quantity cm3/ : 147.0...149.0
 1000H.: (144.5...151.5)
Dispersion cm3/ : 3.50
 1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 63...71

Testing:

1st c-rod trav.mm : 11.40
Speed 1/min : 1140...1150
2nd c-rod trav.mm : 4.00
Speed 1/min : 1240...1270
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...17

Testing:

Speed 1/min : 100
C-rod trav.mm min : 8.00
Speed 1/min : 350
C-rod trav.mm : 5.10...5.30
C-rod trav.mm : 2.00
Speed 1/min : 530...590

CONSTANT REGULATION

Speed 1/min : 370...440

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 500
Contr.-rod trav.mm: 12.40...12.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.90...10.00
2nd pressure hPa : 300
C-rod trav.mm : 11.70...11.80
3rd pressure hPa : 200
C-rod trav.mm : 10.70...10.90

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 500
Speed 1/min : 700
Del.quantity cm3/ : 149.0...153.0
1000H.: (147.0...155.0)
Dispersion cm3/ : 5.00
1000H.: (7.00)
Charge press. hPa : -
Speed 1/min : 1100
Del.quantity cm3/ : 108.0...110.0
1000H.: (105.5...112.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.40
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 157.0...177.0
1000H.: (153.0...181.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.00...5.20

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 G3
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 364

Injection pump
Pump designation : PES6P100A720LS502
EP type number : 9 400 087 050
Governor
Governor design. : RQV350...1100PA828-1
Governor no. : 9 420 080 235

Customer-spec. information
Customer : CATERPILLAR

Engine : 3306 DITA

1st version kW : 191.6
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,7

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 12.90...13.00

Del.quantity cm3/ : 15.3...15.5

100H.: (15.1...15.7)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 6.4...6.6
Del.quantity cm3/ : 1.3...1.7
100H.: (1.0...1.9)
Dispersion cm3/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350
Sleeve travel mm: 1.30...1.50
2nd speed 1/min: 500
Sleeve travel mm: 2.90...3.20
3rd speed 1/min: 700
Sleeve travel mm: 4.60...4.80
4th speed 1/min: 900
Sleeve travel mm: 6.00...6.20
5th speed 1/min: 1150
Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1150
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
3speed 1/min: 1100
Charge press. hPa : 600

Del.quantity cm3/ : 153.0...155.0
1000H.: (151.0...157.0)
Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 62...70

Testing:
1st c-rod trav.mm : 11.90
Speed 1/min : 1140...1150
2nd c-rod trav.mm : 4.00
Speed 1/min : 1250...1280
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...17

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.00
Speed 1/min : 350
C-rod trav.mm : 4.90...5.10
C-rod trav.mm : 2.00
Speed 1/min : 500...560

CONSTANT REGULATION

Speed 1/min : 370...440

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 12.90...13.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.90...10.00
2nd pressure hPa : 340
C-rod trav.mm : 12.00...12.10
3rd pressure hPa : 200
C-rod trav.mm : 10.60...10.80

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600
Speed 1/min : 700
Del.quantity cm3/ : 159.0...163.0
1000H.: (157.0...165.0)
Dispersion cm3/ : 5.00
1000H.: (7.00)
Speed 1/min : 1100
Del.quantity cm3/ : 108.0...110.0
1000H.: (105.5...112.5)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.90
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 157.0...177.0
1000H.: (153.0...181.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.00...5.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 Q9
 Edition : 24.07.87
 Superseded : 21.5.87
 Calibrating oil : ISO-4113
 Combination no. : 9 400 087 368
 Injection pump
 Pump designation : PE6P110A32ORS3108V
 EP type number : 0 411 816 37
 Governor
 Governor design. : RQV250...1100PA589-1
 Governor no. : 9 420 080 166

Customer-spec. information
 Customer : VOLVO

Engine : THD 101 FD

1st version kW : 210.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.70...13.80

Del.quantity cm3/ : 18.0...18.2

100H.: (17.7...18.5)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm3/ : 3.0...3.6

100H.: (2.7...3.6)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500

Sleeve travel mm: 4.10...4.90

3rd speed 1/min: 700

Sleeve travel mm: 6.30...6.70

4th speed 1/min: 950

Sleeve travel mm: 6.30...6.70

5th speed 1/min: 1100

Sleeve travel mm: 7.00...7.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1200

Del.quantity cm3/ : 180.0...182.0

1000H.: (177.0...185.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

H27

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 61...69

Testing:

1st c-rod trav.mm : 12.70

Speed 1/min : 1160...1170

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 7...15

Testing:

Speed 1/min : 140

C-rod trav.mm min : 6.80

Speed 1/min : 250

C-rod trav.mm : 5.30...5.50

C-rod trav.mm : 2.00

Speed 1/min : 345...405

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 1200

Contr.-rod trav.mm: 13.70...13.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.60...9.80

2nd pressure hPa : 300

C-rod trav.mm : 10.00...10.10

3rd pressure hPa : 250

C-rod trav.mm : 13.30...13.50

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm3/ : 106.0...108.0

1000H.: (103.0...111.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.70
Speed 1/min : 1160...1170

MIDDLE RATED SPEED
Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 160.0...190.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 5.30...5.50
Del.quantity cm3/ : 30.0...34.0
1000H.: (27.5...36.5)
Dispersion cm3/ : 3.00
1000H.: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION
Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0Q10
Edition : 12.11.87
Superceeded : 21.5.87
Calibrating oil : ISO-4113

Combination no. : 9 400 087 369

Injection pump
Pump designation : PE6P110A32ORS3108Z
EP type number : 0 411 816 728
Governor
Governor design. : RQV250...1100PAS89-1
Governor no. : 9 420 080 166

Customer-spec. information
Customer : VOLVO

Engine : THD 101 GB

1st version kW : 160.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

J01

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 10.50...10.60

Del.quantity cm3/ : 12.2...12.4

100H.: (11.9...12.7)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm3/ : 3.0...3.4

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500

Sleeve travel mm: 4.10...4.90

3rd speed 1/min: 700

Sleeve travel mm: 6.30...6.70

4th speed 1/min: 950

Sleeve travel mm: 6.30...6.70

5th speed 1/min: 1100

Sleeve travel mm: 7.00...7.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 750

Del.quantity cm3/ : 122.0...124.0

1000H.: (119.0...127.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:

1st c-rod trav.mm : 9.50
Speed 1/min : 1160...1170
2nd c-rod trav.mm : 4.00
Speed 1/min : 1225...1255
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 7...15
Contr.-rod trav.mm: 5.4

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.80
Speed 1/min : 250
C-rod trav.mm : 5.30...5.50
C-rod trav.mm : 2.00
Speed 1/min : 350...410

Adjustment test, manifold-pressure
compensator (LDA, ADA, ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 750
Contr.-rod trav.mm: 10.50...10.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.60...9.80
2nd pressure hPa : 265
C-rod trav.mm : 9.90...10.00
3rd pressure hPa : 311
C-rod trav.mm : 10.20...10.40

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 700
Del. quantity cm3/ : 105.5...108.5
1000H.: (103.0...111.0)

ROTATIONAL-SPEED LIMITATION

1st version

J02

1mm control-rod travel less than

full-load trav.mm: 9.50
Speed 1/min : 1160...1170

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm3/ : 160.0...190.0
1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 5.30...5.50
Del. quantity cm3/ : 30.0...34.0
1000H.: (-)
Dispersion cm3/ : 3.00
1000H.: (6.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet	: FOR 6,6 I
Edition	: 12.11.87
Superseded	: -
Calibrating oil	: ISO-4113
Combination no.	: 9 400 087 375
Injection pump	
Pump designation	: PES6P110A720RS3194
EP type number	: 9 400 087 055
Governor	
Governor design.	: RQV350...1300PA863-5
Governer no.	: 9 420 080 240

Customer-spec. information
Customer : FORD FNH

Engine : 6.6 LTC

1st version kW : 126.0
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening pressure, bar : 207...210

Perforated plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values

START OF DELIVERY

Test pressure, bar: 25...27

```
Prestroke mm      : 4.05...4.15
                  : (4.00...4.20)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence      : 1- 5- 3- 6- 2- 4
```

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - ^o: 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

```

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max.  : 21.00
Difference0 CS    : 2.00...3.00

```

BASIC SETTING

```

1st speed      1/mi: 1300
-----
Contr.-rod trav.mm: 14.60...14.70
-----
Del.quantity cm3/ : 11.7...11.9
-----
100H.: (11.5...12.1)

```

Dispersion cm³/ : 0.5
100H.: (0.9)

```

2nd speed      1/min: 350.0
Contr.-rod trav. m: 8.6...8.8
Del.quantity   cm3/ : 2.0...2.4
                100H.: (1.7...2.6)
Dispersion     cm3/ : 0.3
                100H.: (0.5)

```

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed	1/min:	1400
Sleeve travel	mm:	8.60...8.70
2nd speed	1/min:	1000
Sleeve travel	mm:	5.70...6.10
3rd speed	1/min:	800
Sleeve travel	mm:	4.80...5.20
4th speed	1/min:	500
Sleeve travel	mm:	3.10...3.50
5th speed	1/min:	350
Sleeve travel	mm:	1.60...2.30

SLEEVE POSITION

```
Control-lever position
Degree: -1
Speed      1/min: 1540
Cont.-rod travelmm: 8.00...0.00
```

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300
Charge press. hPa : 800
Del.quantity cm3/ : 117.0...119.0
1000H.: (115.0...121.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 44...52

Testing:

1st c-rod trav.mm : 13.60
Speed 1/min : 1360...1370
2nd c-rod trav.mm : 4.00
Speed 1/min : 1520...1550
4th speed 1/min : 1650
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21

Testing:

Speed 1/min : 100
C-rod trav.mm min : 12.00
Speed 1/min : 350
C-rod trav.mm : 8.60...8.80
C-rod trav.mm : 2.00
Speed 1/min : 535...595

CONSTANT REGULATION

Speed 1/min : 430...500

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 800
Contr.-rod trav.mm: 14.60...14.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.60...12.70
2nd pressure hPa : 580
C-rod trav.mm : 13.40...13.60
3rd pressure hPa : 620
C-rod trav.mm : 14.00...14.10

SWITCH-OVER POINT

J04

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 800
Speed 1/min : 900
Del.quantity cm3/ : 100.5...104.5
1000H.: (98.5...106.5)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 57.0...59.0
1000H.: (55.0...61.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.60
Speed 1/min : 1360...1370

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 120.0...140.0
1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.60...8.80
Del.quantity cm3/ : 20.0...24.0
1000H.: (17.5...26.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 C
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 376

Injection pump
Pump designation : PES6P110A720RS3193
EP type number : 9 400 087 057
Governor
Governor design. : RSV650...1250P8A528
Governor no. : 9 420 082 323

Customer-spec. information
Customer : FORD FNH

Engine : 7.8 L

1st version kW : 140.0
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 214

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
 : (4.20...4.30)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 13.20...13.30

Del.quantity cm3/ : 13.2...13.4

100H.: (13.0...13.6)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 650.0
Contr.-rod trav. m: 5.9...6.1
Del.quantity cm3/ : 0.8...1.2
100H.: (0.5...1.5)
Dispersion cm3/ : 0.3
100H.: (0.5)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Contr.-rod travelmm: 0.30...1.00

Governor-spring reload
Notch setting x : 3.25

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Del.quantity cm3/ : 132.0...134.0
1000H.: (130.0...136.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 49...57

Testing:
1st c-rod trav.mm : 12.20
Speed 1/min : 1260...1270

J06

2nd c-rod trav.mm : 4.00
Speed 1/min : 1300...1320
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I

Control-lever
position degrees: 23...31
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 6.0

Testing:

Speed 1/min : 600
C-rod trav.mm min : 10.00
Speed 1/min : 650
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 770...830

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 800
Del.quantity cm3/ : 110.0...114.0
1000H.: (108.0...116.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.20
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 135.0...155.0
1000H.: (131.0...159.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 650
Contr.-rod trav.mm: 5.90...6.10
Del.quantity cm3/ : 8.0...12.0
1000H.: (5.5...15.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 C 1
 Edition : 12.11.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 9 400 087 377
 Injection pump
 Pump designation : PES6P110A72ORS3193
 EP type number : 9 400 087 057
 Governor
 Governor design. : RSV650...1250P8A530-
 1
 Governor no. : 9 420 082 324

Customer-spec. information
 Customer : FORD - FNH

Engine : 7.8 l

1st version kW : 165.0
 Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY
 Test pressure, bar: 25...27

J08

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
 & c-rod tray max. : 21.00
 Difference⁰ CS : 2.00...3.00

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 14.00...14.10

Del.quantity cm3/ : 13.7...13.9

100H.: (13.5...14.1)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 650.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm3/ : 1.1...1.5

100H.: (0.8...1.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 3.25

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Charge press. hPa : 1000

Del.quantity cm3/ : 137.0...139.0

1000H.: (135.0...141.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 49...57

Testing:
1st c-rod trav.mm : 13.00
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1305...1325
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I
Control-lever
position degrees: 23...31
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 5.5

Testing:
Speed 1/min : 600
C-rod trav.mm min : 10.00
Speed 1/min : 650
C-rod trav.mm : 5.90...6.10
C-rod trav.mm : 2.00
Speed 1/min : 770...830

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 14.00...14.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.40...10.50
2nd pressure hPa : 600
C-rod trav.mm : 13.40...13.50
3rd pressure hPa : 350
C-rod trav.mm : 11.60...11.80

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1000
Speed 1/min : 800
Del.quantity cm3/ : 117.5...119.5
1000H.: (115.5...121.5)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 52.0...54.0
1000H.: (50.0...56.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 13.00
Speed 1/min : 1260...1270

MIDDLE RATED SPEED
Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 135.0...155.0
1000H.: (131.0...159.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 650
Contr.-rod trav.mm: 5.90...6.10
Del.quantity cm3/ : 11.0...15.0
1000H.: (8.5...17.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 C 2
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 378

Injection pump
Pump designation : PES6P110A720RS3193
EP type number : 9 400 087 057
Governor
Governor design. : RSV650...1250P8A530
Governor no. : 9 420 082 325

Customer-spec. information
Customer : FORD -FNH

Engine : 7.8 l

1st version kW : 180.0
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - ^o : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod tray max. : 21.00
Difference^o CS : 2.00...3.00

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 14.60...14.70

Del.quantity cm3/ : 15.5...15.7

100H.: (15.3...15.9)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 650.0
Contr.-rod trav. m: 5.9...6.1
Del.quantity cm3/ : 1.1...1.5
100H.: (0.8...1.7)
Dispersion cm3/ : 0.3
100H.: (0.5)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Contr.-rod travelmm: 0.30...1.00

Governor-spring reload
Notch setting x : 3.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Charge press. hPa : 1000
Del.quantity cm3/ : 155.0...157.0
1000H.: (153.0...159.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 48...56

Testing:
1st c-rod trav.mm : 13.60
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1305...1325
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I

Control-lever
position degrees: 22...30
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 5.5

Testing:
Speed 1/min : 600
C-rod trav.mm min : 10.00
Speed 1/min : 650
C-rod trav.mm : 5.90...6.10
C-rod trav.mm : 2.00
Speed 1/min : 770...830

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 14.60...14.70

Measurement

Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 11.50...11.60
2nd pressure hPa : 600
C-rod trav.mm : 14.00...14.10
3rd pressure hPa : 350
C-rod trav.mm : 12.40...12.60

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1000
Speed 1/min : 800
Del.quantity cm3/ : 131.0...135.0
1000H.: (129.0...137.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 66.0...68.0
1000H.: (64.0...70.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.60

Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 135.0...155.0

1000H.: (131.0...159.0)

Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 650

Contr.-rod trav.mm: 5.90...6.10

Del.quantity cm3/ : 11.0...15.0

1000H.: (8.5...17.5)

Dispersion cm3/ : 3.50

1000H.: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 D
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 379

Injection pump
Pump designation : PES6P110A720RS3150
EP type number : 9 400 087 046
Governor
Governor design. : RQV350...1200PA863
Governor no. : 9 420 080 242

Customer-spec. information
Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 138.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod tray max. : 21.00
Difference^o CS : 2.00...3.00

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 13.00...13.10

Del.quantity cm3/ : 12.7...12.9
 100H.: (12.5...13.1)

Dispersion cm3/ : 0.5
 100H.: (0.9)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 8.0...8.2
Del.quantity cm3/ : 2.3...2.7
 100H.: (2.0...2.9)
Dispersion cm3/ : 0.3
 100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1300
Sleeve travel mm: 8.40...8.50
2nd speed 1/min: 1000
Sleeve travel mm: 6.00...6.40
3rd speed 1/min: 800
Sleeve travel mm: 4.90...5.30
4th speed 1/min: 500
Sleeve travel mm: 3.10...3.50
5th speed 1/min: 350
Sleeve travel mm: 1.60...2.30

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1440
Contr.-rod travelmm: 8.00...0.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Charge press. hPa : 600
Del.quantity cm3/ : 127.5...129.5
 1000H.: (125.5...131.5)
Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 42...50

Testing:
1st c-rod trav.mm : 12.00
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1385...1415
4th speed 1/min : 1500
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 8.1

Testing:
Speed 1/min : 100
C-rod trav.mm min : 12.00
Speed 1/min : 350
C-rod trav.mm : 8.00...8.20
C-rod trav.mm : 2.00
Speed 1/min : 495...555

CONSTANT REGULATION

Speed 1/min : 390...460

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 13.00...13.10
2nd speed 1/min : 750
C-rod trav.mm : 13.80...13.90
4th speed 1/min : 975
C-rod trav.mm : 13.40...13.50

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 13.80...13.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.20...12.30
2nd pressure hPa : 267
C-rod trav.mm : 12.60...12.70
3rd pressure hPa : 335
C-rod trav.mm : 13.30...13.50

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 600
Speed 1/min : 750
Del.quantity cm3/ : 115.0...119.0
1000H.: (113.0...121.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 74.5...76.5
1000H.: (72.5...78.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.00
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0
1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.00...8.20
Del.quantity cm3/ : 23.0...27.0
1000H.: (20.5...29.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 E
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 380

Injection pump
Pump designation : PES6P110A720RS3151
EP type number : 9 400 087 047
Governor
Governor design. : RQV350...1200PA863-1
Governor no. : 9 420 080 243

Customer-spec. information
Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 157.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - ⁰ : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max. : 21.00
Difference ⁰ CS : 2.00...3.00

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 13.30...13.40

Del.quantity cm3/ : 13.2...13.4

100H.: (13.0...13.6)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 8.0...8.2
Del.quantity cm3/ : 2.6...3.0
100H.: (2.3...3.2)
Dispersion cm3/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350
Sleeve travel mm: 1.60...2.30
2nd speed 1/min: 500
Sleeve travel mm: 3.10...3.50
3rd speed 1/min: 800
Sleeve travel mm: 4.90...5.30
4th speed 1/min: 1000
Sleeve travel mm: 6.00...6.40
5th speed 1/min: 1300
Sleeve travel mm: 8.40...8.50

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1440
Contr.-rod travelmm: 8.00...0.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200
Charge press. hPa : 600
Del.quantity cm3/ : 132.0...134.0
1000H.: (130.0...136.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 43...51

Testing:

1st c-rod trav.mm : 12.30
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1390...1420
4th speed 1/min : 1520
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21

Testing:

Speed 1/min : 100
C-rod trav.mm min : 12.00
Speed 1/min : 350
C-rod trav.mm : 8.00...8.20
C-rod trav.mm : 2.00
Speed 1/min : 495...555

CONSTANT REGULATION

Speed 1/min : 390...460

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1200
C-rod trav.mm : 12.30...12.40
2nd speed 1/min : 750
C-rod trav.mm : 14.00...14.10
4th speed 1/min : 975
C-rod trav.mm : 13.80...13.90

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 11.90...12.00
2nd pressure hPa : 420
C-rod trav.mm : 12.50...12.60
3rd pressure hPa : 505
C-rod trav.mm : 13.40...13.60

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600
Speed 1/min : 750
Del.quantity cm3/ : 116.0...120.0
1000H.: (114.0...122.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 70.0...72.0
1000H.: (68.0...74.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.30
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 150.0...170.0
1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.00...8.20
Del.quantity cm3/ : 26.0...30.0
1000H.: (23.5...32.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 D 1
 Edition : 12.11.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 9 400 087 381
 Injection pump
 Pump designation : PES6P110A720RS3150
 EP type number : 9 400 087 046
 Governor
 Governor design. : RQV350...1200PA863-3
 Governor no. : 9 420 080 244

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 160.0
 Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod tray max. : 21.00
Difference^o CS : 2.00...3.00

BASIC SETTING

1st speed	1/mi: 1200

Contr.-rod trav.mm:	12.90...13.00

Del.quantity cm3/ :	12.5...12.7

100H.: (12.3...12.9)	

Dispersion cm3/ :	0.5

100H.: (0.9)	

2nd speed	1/min: 350.0
Contr.-rod trav. m:	8.0...8.2
Del.quantity cm3/ :	2.3...2.7
100H.: (2.1...2.9)	
Dispersion cm3/ :	0.3
100H.: (0.5)	

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed	1/min: 350
Sleeve travel mm:	1.60...2.30
2nd speed	1/min: 500
Sleeve travel mm:	3.10...3.50
3rd speed	1/min: 800
Sleeve travel mm:	4.90...5.30
4th speed	1/min: 1000
Sleeve travel mm:	6.00...6.40
5th speed	1/min: 1300
Sleeve travel mm:	8.40...8.50

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1440
Contr.-rod travelmm: 8.00...0.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Charge press. hPa : 600
Del.quantity cm3/ : 125.5...127.5
1000H.: (123.5...129.5)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 42...50

Testing:
1st c-rod trav.mm : 11.90
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1380...1410
4th speed 1/min : 1500
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21

Testing:
Speed 1/min : 100
C-rod trav.mm min : 12.00
Speed 1/min : 350
C-rod trav.mm : 8.00...8.20
C-rod trav.mm : 2.00
Speed 1/min : 495...555

CONSTANT REGULATION

Speed 1/min : 390...460

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 12.90...13.00
2nd speed 1/min : 750
C-rod trav.mm : 14.00...14.10
4th speed 1/min : 975
C-rod trav.mm : 13.50...13.60

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 14.00...14.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.90...13.00
2nd pressure hPa : 333
C-rod trav.mm : 13.20...13.30
3rd pressure hPa : 380
C-rod trav.mm : 13.70...13.90

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600
Speed 1/min : 750
Del.quantity cm3/ : 117.0...121.0
1000H.: (115.0...123.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 84.0...86.0
1000H.: (82.0...88.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 11.90
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 150.0...170.0
1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.00...8.20
Del.quantity cm3/ : 23.0...27.0
1000H.: (21.0...29.0)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 E 1
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 382

Injection pump
Pump designation : PES6P110A72ORS3151
EP type number : 9 400 087 047
Governor
Governor design. : RQV350...1200PA863-2
Governor no. : 9 420 080 245

Customer-spec. information
Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 160.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-00-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod tray max. : 21.00
Difference⁰ CS : 2.00...3.00

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 13.70...13.80

Del.quantity cm3/ : 13.6...13.8

100H.: (13.4...14.0)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 8.0...8.2
Del.quantity cm3/ : 2.4...2.8
100H.: (2.1...3.0)
Dispersion cm3/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350
Sleeve travel mm: 1.60...2.30
2nd speed 1/min: 500
Sleeve travel mm: 3.10...3.50
3rd speed 1/min: 800
Sleeve travel mm: 4.90...5.30
4th speed 1/min: 1000
Sleeve travel mm: 6.00...6.40
5th speed 1/min: 1300
Sleeve travel mm: 8.40...8.50

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1440
Contr.-rod travelmm: 8.00...0.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Charge press. hPa : 600
Del.quantity cm3/ : 136.0...138.0
1000H.: (134.0...140.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 43...51

Testing:
1st c-rod trav.mm : 12.70
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1400...1430
4th speed 1/min : 1530
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21

Testing:
Speed 1/min : 100
C-rod trav.mm min : 12.00
Speed 1/min : 350
C-rod trav.mm : 8.00...8.20
C-rod trav.mm : 2.00
Speed 1/min : 495...555

CONSTANT REGULATION

Speed 1/min : 390...460

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 13.70...13.80
2nd speed 1/min : 750
C-rod trav.mm : 14.30...14.40
4th speed 1/min : 975
C-rod trav.mm : 14.10...14.20

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 14.30...14.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.40...12.50
2nd pressure hPa : 345
C-rod trav.mm : 12.90...13.00
3rd pressure hPa : 420
C-rod trav.mm : 13.60...13.80

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600
Speed 1/min : 750
Del.quantity cm3/ : 119.0...123.0
1000H.: (117.0...125.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 76.5...78.5
1000H.: (74.5...80.5)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.70
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0
1000H.: (-)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.00...8.20
Del.quantity cm3/ : 24.0...28.0
1000H.: (21.5...30.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 E 2
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 9 400 087 383
Injection pump
Pump designation : PES6P110A72ORS3151
EP type number : 9 400 087 047
Governor
Governor design. : RQV350...1200PA863-4
Governor no. : 9 420 080 246

Customer-spec. information
Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 179.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max. : 21.00
Difference^o CS : 2.00...3.00

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 14.50...14.60

Del.quantity cm3/ : 14.9...15.1

100H.: (14.7...15.3)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 8.0...8.2
Del.quantity cm3/ : 2.4...2.8
100H.: (2.1...3.0)
Dispersion cm3/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350
Sleeve travel mm: 1.60...2.30
2nd speed 1/min: 500
Sleeve travel mm: 3.10...3.50
3rd speed 1/min: 800
Sleeve travel mm: 4.90...5.30
4th speed 1/min: 1000
Sleeve travel mm: 6.00...6.40
5th speed 1/min: 1300
Sleeve travel mm: 8.40...8.50

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1440
Contr.-rod travelmm: 8.00...0.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200
Charge press. hPa : 700
Del.quantity cm3/ : 149.5...151.5
1000H.: (147.5...153.5)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 44...52

Testing:

1st c-rod trav.mm : 13.50
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1410...1440
4th speed 1/min : 1520
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21

Testing:

Speed 1/min : 100
C-rod trav.mm min : 12.00
Speed 1/min : 350
C-rod trav.mm : 8.00...8.20
C-rod trav.mm : 2.00
Speed 1/min : 495...555

CONSTANT REGULATION

Speed 1/min : 390...460

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1200
C-rod trav.mm : 14.50...14.60
2nd speed 1/min : 750
C-rod trav.mm : 15.00...15.10
4th speed 1/min : 975
C-rod trav.mm : 14.70...14.80

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 15.00...15.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.10...12.20
2nd pressure hPa : 430
C-rod trav.mm : 13.30...13.40
3rd pressure hPa : 532
C-rod trav.mm : 14.30...14.50

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 700
Speed 1/min : 750
Del.quantity cm3/ : 128.0...132.0
1000H.: (126.0...134.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 72.0...74.0
1000H.: (70.0...76.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 13.50
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0
1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.00...8.20
Del.quantity cm3/ : 24.0...28.0
1000H.: (21.5...30.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before
shutoff,

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 C 4
Edition : 06.11.87
Superceeded : 7.86
Calibrating oil : ISO-4113

Combination no. : 9 400 230 045

Injection pump
Pump designation : PES6A9SD41ORS2522-1
EP type number : 9 410 230 017
Governor
Governor design. : RSV425...1100A2C2161
L
Governer no. : 9 420 234 140

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466T

1st version kW : 106.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 1.85...1.95
: (1.80...2.00)

Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 9.00...9.10

Del.quantity cm3/ : 8.6...8.8

100H.: (8.4...9.0)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 425.0

Contr.-rod trav. m: 5.5...5.7

Del.quantity cm3/ : 1.8...2.2

100H.: (1.5...2.4)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 500

Del.quantity cm3/ : 86.5...88.5

1000H.: (84.0...90.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 46...54

Testing:

1st c-rod trav.mm : 8.00

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1185...1195

4th speed 1/min : 1300

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 21...29

Setting point w/out aux. spring

Speed 1/min : 425

Contr.-rod trav.mm: 5.1

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 425

C-rod trav.mm : 5.50...5.70

C-rod trav.mm : 2.00

Speed 1/min : 590...650

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 9.00...9.10

2nd speed 1/min : 650

C-rod trav.mm : 10.40...10.60

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : -

Contr.-rod trav.mm: 10.20...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : 100

C-rod trav.mm : 10.30...10.40

2nd pressure hPa : 149

C-rod trav.mm : 10.40...10.60

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 500

Speed 1/min : 650

Del.quantity cm3/ : 102.5...105.5

1000H.: (100.0...108.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : -

1000H.: (87.0...95.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.00
Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 155.0...175.0
1000H.: (150.0...180.0)
Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

1st version
Speed 1/min : 1180
Contr.-rod trav.mm: 5.30...5.50

LOW IDLE

Speed 1/min : 425
Contr.-rod trav.mm: 5.50...5.70
Del.quantity cm3/ : 18.0...22.0
1000H.: (15.5...24.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

: JOHN DEERE
Setting without torque-control spring
retainer with 1 mm control-rod travel
less. Raising of full-load delivery
with torque-control spring retainer to
9,0 mm control-rod travel.

Start-of-delivery mark 16° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 H 6
Edition : 06.11.87
Superceeded : 7.86
Calibrating oil : ISO-4113
Combination no. : 9 400 230 070
Injection pump
Pump designation : PES6A100D410RS2676-1
EP type number : 9 410 230 024
Governor
Governor design. : RSV400...950A1C2186-2L
Governor no. : 9 420 234 150

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466T

1st version kW : 102.0
Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 9 681 271 001

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
(2.40...2.60)

Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 950

Contr.-rod trav.mm: 10.50...10.60

Del.quantity cm3/ : 9.7...9.9

100H.: (9.5...10.1)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 400.0

Contr.-rod trav. m: 6.5...6.7

Del.quantity cm3/ : 1.8...2.2

100H.: (1.5...2.4)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 950

Del.quantity cm3/ : 97.0...99.0

1000H.: (95.0...101.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 47...55

Testing:

1st c-rod trav.mm : 9.50

Speed 1/min : 995...1005

2nd c-rod trav.mm : 4.00

Speed 1/min : 1045...1055

3rd c-rod trav.mm : 4.00

Speed 1/min : 1050...1080

4th speed 1/min : 1150

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 22...30

Setting point w/out aux. spring

Speed 1/min : 400

Contr.-rod trav.mm: 6.1

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 400

C-rod trav.mm : 6.50...6.70

C-rod trav.mm : 2.00

Speed 1/min : 535...595

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 950

C-rod trav.mm : 10.50...10.60

2nd speed 1/min : 650

C-rod trav.mm : 11.90...12.10

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 650

Del.quantity cm3/ : 115.0...118.0

1000H.: (112.5...120.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.50

Speed 1/min : 995...1005

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 19.8...21.2

1000H.: (19.5...21.5)

Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 400

Contr.-rod trav.mm: 6.50...6.70

Del.quantity cm3/ : 18.0...22.0

1000H.: (15.5...24.5)

Dispersion cm3/ : 3.50

1000H.: (5.50)

Remarks:

:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

K04

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 5,9 A
Edition : 06.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 9 400 230 104
Injection pump
Pump designation : PES6A95D32ORS2724
EP type number : 9 410 230 029
Governor
Governor design. : RQV350...1350AB1224R
Governor no. : 9 420 231 016

Customer-spec. information
Customer : NAVISTAR

Engine : MARS DT 360

1st version kW : 123.0
Speed 1/min: 2700

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Calibrating nozzle-holder
assembly : 1 688 901 025

Opening
pressure, bar : 172...175

Perforated-plate
diameter mm : 0,5

Test inj. tubing : 9 681 271 001

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1350

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm3/ : 7.5...7.7

100H.: (7.3...7.9)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm3/ : 1.5...1.9

100H.: (1.2...2.1)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1400

Sleeve travel mm: 8.50...8.50

2nd speed 1/min: 1500

Sleeve travel mm: 9.30...9.50

3rd speed 1/min: 350

Sleeve travel mm: 1.00...1.00

4th speed 1/min: 450

Sleeve travel mm: 1.90...2.40

5th speed 1/min: 250

Sleeve travel mm: 0.10...0.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1550

Contr.-rod travelmm: 6.70...9.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1350

Charge press. hPa : 900

Del.quantity cm3/ : 75.5...77.5
1000H.: (73.5...79.5)
Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 49...55

Testing:
1st c-rod trav.mm : 10.50
Speed 1/min : 1390...1420
2nd c-rod trav.mm : 4.00
Speed 1/min : 1505...1515
4th speed 1/min : 1600
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...15
Speed 1/min : 350
C-rod trav.mm : 5.30...5.50
Speed 1/min : 250
C-rod trav.mm max : 7.80

CONSTANT REGULATION

Speed 1/min : 350...500

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : -
Contr.-rod trav.mm: 9.10...9.30

Measurement
Speed 1/min : 500

1st pressure hPa : 466
C-rod trav.mm : 10.40...10.80
2nd pressure hPa : 227
C-rod trav.mm : 9.60...9.70
3rd pressure hPa : 900
C-rod trav.mm : 11.00...11.30

SWITCH-OVER POINT

Speed 1/min : 290 (300)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 500

K06

Del.quantity cm3/ : -
1000H.: (66.0...74.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.50
Speed 1/min : 1390...1420

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 15.0...15.0
1000H.: (14.5...14.5)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.30...5.50
Del.quantity cm3/ : 15.0...19.0
1000H.: (12.5...21.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 5,9 A 1
Edition : 06.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 9 400 230 105
Injection pump
Pump designation : PES6A95D32ORS2724
EP type number : 9 410 230 029
Governor
Governor design. : RQV350...135OAB1221R
Governor no. : 9 420 231 017

Customer-spec. information
Customer : NAVISTAR

Engine : MARS DTA360

1st version kW : 134.0
Speed 1/min: 2700

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Calibrating nozzle-holder
assembly : 1 688 901 025

Opening
pressure, bar : 172...175

Perforated-plate
diameter mm : 0,5

Test inj. tubing : 9 681 271 001

Outside diameter
x Wall thickness
x Length mm : 6.35X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1350

Contr.-rod trav.mm: 11.50...11.60

Del.quantity cm3/ : 8.0...8.2

100H.: (7.8...8.4)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm3/ : 1.5...1.9

100H.: (1.2...2.1)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1400

Sleeve travel mm: 8.50...8.50

2nd speed 1/min: 1500

Sleeve travel mm: 9.30...9.50

3rd speed 1/min: 350

Sleeve travel mm: 1.00...1.00

4th speed 1/min: 450

Sleeve travel mm: 1.90...2.40

5th speed 1/min: 250

Sleeve travel mm: 0.10...0.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1550

Contr.-rod travelmm: 6.70...9.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1350

Charge press. hPa : 900

Del.quantity cm3/ : 80.0...82.0
1000H.: (78.0...84.0)
Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 49...55

Testing:
1st c-rod trav.mm : 10.50
Speed 1/min : 1395...1425
2nd c-rod trav.mm : 4.00
Speed 1/min : 1525...1535
4th speed 1/min : 1600
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...15
Speed 1/min : 350
C-rod trav.mm : 5.30...5.50
C-rod trav.mm : 2.00
Speed 1/min : 420...480
Speed 1/min : 250
C-rod trav.mm max : 7.80

CONSTANT REGULATION

Speed 1/min : 350...500

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : -
Contr.-rod trav.mm: 9.90...10.10

Measurement

Speed 1/min : 500

1st pressure hPa : 339
C-rod trav.mm : 10.90...11.30
2nd pressure hPa : 157
C-rod trav.mm : 10.30...10.40

SWITCH-OVER POINT

Speed 1/min : 290 (300)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 500

K08

Del.quantity cm3/ : -
1000H.: (74.0...82.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.50
Speed 1/min : 1395...1425

MIDDLE RATED SPEED

Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 150.0...150.0
1000H.: (145.0...145.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.30...5.50
Del.quantity cm3/ : 15.0...19.0
1000H.: (12.5...21.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

: NAVISTAR #
: 1 810 221 C92
Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 B 3
Edition : 06.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 9 400 230 107
Injection pump
Pump designation : PES6A100D320/3RS2691
-2
EP type number : 9 410 230 028
Governor
Governor design. : RQV350...1200AB1233R
Governor no. : 9 420 231 018

Customer-spec. information
Customer : C.D.C

Engine : 6CT830

1st version kW : 157.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 172...175

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 9 681 271 029

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 27...29

K09

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 10.80...10.90

Del.quantity cm3/ : 11.3...11.5
100H.: (11.1...11.7)

Dispersion cm3/ : 0.3
100H.: (0.6)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 4.6...4.8
Del.quantity cm3/ : 1.6...2.0
100H.: (1.3...2.2)
Dispersion cm3/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS
1st speed 1/min: 250
Sleeve travel mm: 0.00...0.20
2nd speed 1/min: 350
Sleeve travel mm: 1.00...1.50
3rd speed 1/min: 450
Sleeve travel mm: 1.90...2.40
4th speed 1/min: 1200
Sleeve travel mm: 6.90...6.90
5th speed 1/min: 1350
Sleeve travel mm: 8.15...8.65

SLEEVE POSITION
Control-lever position
Degree: -1
Speed 1/min: 1435
Contr.-rod travelmm: 6.70...9.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Charge press. hPa : 500

Del.quantity cm3/ : 113.0...115.0
1000H.: (111.0...117.0)
Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 40...46

Testing:

1st c-rod trav.mm : 9.80
Speed 1/min : 1240...1250
2nd c-rod trav.mm : 4.00
Speed 1/min : 1315...1345
4th speed 1/min : 1400
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...15
Speed 1/min : 350
C-rod trav.mm : 4.60...4.80
C-rod trav.mm : 2.00
Speed 1/min : 480...540

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 240
Contr.-rod trav.mm: 9.70...9.80

Measurement

Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 9.30...9.50
2nd pressure hPa : 333
C-rod trav.mm : 10.20...10.60
3rd pressure hPa : 500
C-rod trav.mm : 10.70...11.00

SWITCH-OVER POINT

Speed 1/min : 290 (300)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : -
1000H.: (82.5...90.5)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 9.80
Speed 1/min : 1240...1250

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 150.0...170.0
1000H.: (145.0...175.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 4.60...4.80
Del.quantity cm3/ : 16.0...20.0
1000H.: (13.5...22.5)
Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

: C.D.C. # 390558

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 9,6 N 1
 Edition : 07.12.87
 Superceeded : 12.9.86
 Calibrating oil : ISO-4113
 Combination no. : 0 400 646 266
 Injection pump
 Pump designation : PE6A95D410LS2587
 EP type number : 0 410 696 983
 Governor
 Governor design. : RQV300...1150AB1088L
 Governer no. : 0 420 212 115

Customer-spec. information
 Customer : KHD

Engine : F6L413 FW

1st version kW : 106.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 6- 5- 4- 3- 2

SD ang. spacing⁰CS: 0-75-120-195-240-315
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 8.30...8.40

Del.quantity cm3/ : 7.2...7.4

100H.: (7.0...7.6)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100H.: (0.6...1.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.20...1.30

2nd speed 1/min: 400

Sleeve travel mm: 2.30...2.70

3rd speed 1/min: 600

Sleeve travel mm: 3.00...3.50

4th speed 1/min: 1195

Sleeve travel mm: 8.40...8.50

5th speed 1/min: 1235

Sleeve travel mm: 8.90...9.10

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1190

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm3/ : 72.0...74.0

1000H.: (70.0...76.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:
1st c-rod trav.mm : 7.30
Speed 1/min : 1190...1200
2nd c-rod trav.mm : 4.00
Speed 1/min : 1220...1250
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Control-lever
position degrees: 12...20

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.00
Speed 1/min : 300
C-rod trav.mm : 6.40...6.60

CONSTANT REGULATION
Speed 1/min : 320...420

TORQUE CONTROL
Dimension a mm : 1.00
Torque-control curve - 1st version
1st speed 1/min : 1150
C-rod trav.mm : 8.30...8.40
2nd speed 1/min : 500
C-rod trav.mm : 9.30...9.40
3rd speed 1/min : 935
C-rod trav.mm : 9.00...9.20
4th speed 1/min : 1045
C-rod trav.mm : 8.50...8.70

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 800
Del.quantity cm3/ : 78.0...81.0
1000H.: (75.5...83.5)
Speed 1/min : 800
Del.quantity cm3/ : 98.5...101.5
1000H.: (96.0...104.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 500

ROTATIONAL-SPEED LIMITATION

K12

1st version
1mm control-rod travel less than
full-load trav.mm: 7.30
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 120.0...130.0
1000H.: (117.0...133.0)
Contr.-rod trav.mm: 14.40...14.80

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

2. Set fuel delivery in fuel-delivery
characteristics with stop above the
governor housing.

When accelerating from engine speed
"0", no voltage in starting solenoid.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 15.8 N1
 Edition : 07.12.87
 Superceeded : 15.5.87
 Calibrating oil : ISO-4113
 Combination no. : 0 400 649 219
 Injection pump
 Pump designation : PE10A95D610/4LS2589
 EP type number : 0 410 699 994
 Governor
 Governor design. : RQV300...1150AB1047D
 L
 Governor no. : 0 420 214 242
 Customer-spec. information
 Customer : KHD
 Engine : F10L413 FW
 1st version kW : 177.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.00
 Calibrating nozzle-holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test inj. tubing : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 1.50...1.60
 : (1.45...1.65)

K13

Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1-10- 9- 4- 3- 6- 5-
 8- 7- 2

SD ang. spacing°CS: 0-27-72-99-144-171-
 216-243-288-315
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1150
 Contr.-rod trav.mm: 9.30...9.40
 Del.quantity cm3/ : 6.9...7.1
 100H.: (6.7...7.3)
 Dispersion cm3/ : 0.3
 100H.: (0.6)
 2nd speed 1/min: 300.0
 Contr.-rod trav. m: 7.2...7.4
 Del.quantity cm3/ : 1.4...2.0
 100H.: (1.1...2.2)
 Dispersion cm3/ : 0.3
 100H.: (0.5)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300
 Sleeve travel mm: 1.20...1.30
 2nd speed 1/min: 400
 Sleeve travel mm: 2.20...2.60
 3rd speed 1/min: 600
 Sleeve travel mm: 3.00...3.50
 4th speed 1/min: 1195
 Sleeve travel mm: 8.40...8.50
 5th speed 1/min: 1235
 Sleeve travel mm: 9.10...9.30

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 1190
 Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 1150
 Del.quantity cm3/ : 69.0...71.0
 1000H.: (67.0...73.0)

Dispersion cm3/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:
1st c-rod trav.mm : 8.30
Speed 1/min : 1190...1200
2nd c-rod trav.mm : 4.00
Speed 1/min : 1230...1260
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 10...18

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.80
Speed 1/min : 300
C-rod trav.mm : 7.20...7.40

CONSTANT REGULATION

Speed 1/min : 320...430

TORQUE CONTROL

Dimension a mm : 1.00
Torque-control curve - 1st version
1st speed 1/min : 1150
C-rod trav.mm : 9.30...9.40
2nd speed 1/min : 500
C-rod trav.mm : 10.30...10.40
3rd speed 1/min : 935
C-rod trav.mm : 10.00...10.20
4th speed 1/min : 1045
C-rod trav.mm : 9.50...9.70

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 800
Del.quantity cm3/ : 75.5...78.5
1000H.: (73.0...81.0)
Speed 1/min : 800
Del.quantity cm3/ : 98.5...101.5
1000H.: (96.0...104.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 500

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 8.30
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 120.0...130.0
1000H.: (117.0...133.0)
Contr.-rod trav.mm: 15.40...15.80

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

2. Set fuel delivery in fuel-delivery
characteristics with stop above the
governor housing.

When accelerating from engine speed
"0", no voltage in starting solenoid.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 C 5
Edition : 07.12.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 400 876 337

Injection pump
Pump designation : PES6A90D41ORS2710
EP type number : 0 410 896 082
Governor
Governor design. : RSV350...1400A0C1135
-2L
Governor no. : 0 420 232 473

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 96.0
Speed 1/min: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35
: (2.20...2.40)

K15

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1400
Contr.-rod trav.mm: 11.00...11.10
Del.quantity cm3/ : 6.4...6.5
100H.: (6.2...6.7)
Dispersion cm3/ : 0.3
100H.: (0.5)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 8.8...9.4
Del.quantity cm3/ : 1.0...1.4
100H.: (0.8...1.6)
Dispersion cm3/ : 0.2
100H.: (0.4)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Contr.-rod travelmm: 0.30...0.70

Governor-spring reload
Notch setting x : 6.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1400
Del.quantity cm3/ : 64.0...65.0
1000H.: (62.0...67.0)
Dispersion cm3/ : 3.00
1000H.: (5.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 59...67

Testing:
1st c-rod trav.mm : 10.00
Speed 1/min : 1435...1440
2nd c-rod trav.mm : 4.00
Speed 1/min : 1475...1488
3rd c-rod trav.mm : 4.00
Speed 1/min : 1515...1545

4th speed 1/min : 1575
C-rod trav.mm : 0.30...1.40
5th speed 1/min : 1440...1450
C-rod trav.mm : 10.00

Del.quantity cm3/ : 10.0...14.0
1000H.: (8.0...16.0)
Dispersion cm3/ : 2.50
1000H.: (4.50)

LOWEST RATED SPEED I

Control-lever
position degrees: -3
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 9.10

Remarks:

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 350
C-rod trav.mm : 9.00...9.20
C-rod trav.mm : 2.00
Speed 1/min : 470...530

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1400
C-rod trav.mm : 11.00...11.10
2nd speed 1/min : 500
C-rod trav.mm : 12.10...12.20
3rd speed 1/min : 750
C-rod trav.mm : 11.80...12.00
4th speed 1/min : 950
C-rod trav.mm : 11.40...11.70

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 600
Del.quantity cm3/ : 52.0...54.0
1000H.: (49.5...56.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00
Speed 1/min : 1435...1440

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 78.0...88.0
1000H.: (75.0...91.0)
Contr.-rod trav.mm: 16.90...17.30

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.80...9.40

K16

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 19,1 0 1
 Edition : 07.12.87
 Superceeded : 12.9.86
 Calibrating oil : ISO-4113
 Combination no. : 0 401 840 106
 Injection pump
 Pump designation : PE12P110A320LS855
 EP type number : 0 411 810 046
 Governor
 Governor design. : RQV350...1150PA493R
 Governor no. : 0 421 813 237

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 404 A

1st version kW : 386.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-gil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 150...170

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 12- 1- 5- 9- 8- 3-
 4- 11- 10- 2- 6- 7

SD ang. spacing^oCS: 0-45-60-105-120-165-
 180-225-240-285-300-
SD ang. spacing^oCS: 345
Tolerance + - ^o : 0.50 (0.75)

SD mark cyl. no. : 12

BASIC SETTING

1st speed 1/mi: 1130

Contr.-rod trav.mm: 13.10...13.20

Del.quantity cm3/ : 14.0...14.2

 100H.: (13.7...14.5)

Dispersion cm3/ : 0.4

 100H.: (0.8)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 7.5...7.7
Del.quantity cm3/ : 1.8...2.4
 100H.: (1.5...2.6)
Dispersion cm3/ : 0.4
 100H.: (0.7)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300
Sleeve travel mm: 0.90...1.20
2nd speed 1/min: 450
Sleeve travel mm: 3.00...3.30
3rd speed 1/min: 1200
Sleeve travel mm: 8.50...9.00
4th speed 1/min: 1300
Sleeve travel mm: 9.80...10.60

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1180
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1130
Charge press. hPa : 700

Del.quantity cm3/ : 140.0...142.0
 1000H.: (137.0...145.0)
Dispersion cm3/ : 4.00
 1000H.: (8.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 62...70

Testing:
1st c-rod trav.mm : 12.10
Speed 1/min : 1185...1195
2nd c-rod trav.mm : 4.00
Speed 1/min : 1295...1325
4th speed 1/min : 1450
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 10...18

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.60
Speed 1/min : 350
C-rod trav.mm : 7.00...7.20
C-rod trav.mm : 2.00
Speed 1/min : 690...750

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : -
Contr.-rod trav.mm: 12.70....12.90

Measurement

Speed 1/min : 500
1st pressure hPa : 395
C-rod trav.mm : 13.00...13.10

SWITCH-OVER POINT

Speed 1/min : 270 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700
Speed 1/min : 1130
Del.quantity cm3/ : 99.0...103.0 *
 1000H.: (96.0...106.0)

Dispersion cm3/ : 6.00
1000H.: (9.00)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 121.0...123.0
1000H.: (118.5...125.5)
Dispersion cm3/ : 6.00
1000H.: (-)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 12.10
Speed 1/min : 1185...1195

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 130.0...150.0
1000H.: (126.0...154.0)

Remarks:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12,2 A
Edition : 20.11.87
Superceeded : 12.9.86
Calibrating oil : ISO-4113

Combination no. : 0 401 846 826

Injection pump
Pump designation : PE6P120A32ORS3178
EP type number : 0 411 826 752
Governor
Governor design. : RQV250...102SPA657-
10
Governor no. : 0 421 813 567

Customer-spec. information
Customer : VOLVO

Engine : TD122FS

1st version kW : 287.0
Speed 1/min: 2050

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

K20

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 14.00...14.10

Del.quantity cm3/ : 25.2...25.4
100H.: (24.9...25.7)

Dispersion cm3/ : 0.5
100H.: (0.9)

2nd speed 1/min: 250.0
Contr.-rod trav. m: 4.80...5.10
Del.quantity cm3/ : 1.6...2.3
100H.: (1.5...2.5)
Dispersion cm3/ : 0.5
100H.: (0.7)

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1090
Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 700
Charge press. hPa : 1200
Del.quantity cm3/ : 252.0...254.0
1000H.: (249.0...257.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:
1st c-rod trav.mm : 13.00
Speed 1/min : 1055...1065
2nd c-rod trav.mm : 4.00

Speed 1/min : 1140...1170
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 6...14

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.40
Speed 1/min : 250
C-rod trav.mm : 4.80...5.10

CONSTANT REGULATION

Speed 1/min : 250...400

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 1200
Contr.-rod trav.mm: 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.90...10.10
2nd pressure hPa : 90
C-rod trav.mm : 10.20...10.30
3rd pressure hPa : 870
C-rod trav.mm : 13.60...13.90

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm3/ : 163.0...165.0
1000H.: (160.0...168.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.00
Speed 1/min : 1055...1065

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 230.0...250.0
1000H.: (226.0...254.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Del.quantity cm3/ : 18.0...23.0
1000H.: (15.5...25.5)
Dispersion cm3/ : 5.00
1000H.: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 D1
 Edition : 12.11.87
 Superceeded : 9.10.87
 Calibrating oil : ISO-4113
 Combination no. : 0 401 846 831
 Injection pump
 Pump designation : PE6P120A32ORS3183-1Y
 EP type number : 0 411 826 765
 Governor
 Governor design. : RQ250/1000PA832
 Governer no. : 0 421 801 368

Customer-spec. information
 Customer : DAF

Engine : WS 282

1st version kW : 282.0
 Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 850

 Contr.-rod trav.mm: 13.10...13.20

 Del.quantity cm3/ : 21.9...22.1

 100H.: (21.6...22.4)

 Dispersion cm3/ : 0.5

 100H.: (0.9)

2nd speed 1/min: 250.0
 Contr.-rod trav. m: 6.6...7.0
 Del.quantity cm3/ : 1.4...2.0
 100H.: (1.1...2.3)
 Dispersion cm3/ : 0.8
 100H.: (1.2)

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 550
 Contr.-rod travelmm: 15.20...16.40

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 850
 Charge press. hPa : 1000
 Del.quantity cm3/ : 219.0...221.0
 1000H.: (216.0...224.0)
 Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
 Setting point:
 Speed 1/min : 550
 Contr.-rod trav.mm: 15.8

Testing:
 1st c-rod trav.mm : 12.10
 Speed 1/min : 1035...1050
 2nd c-rod trav.mm : 4.00
 Speed 1/min : 1130...1160

4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 250
Contr.-rod trav.mm: 6.8

Testing:

Speed 1/min : 100
C-rod trav.mm min : 8.30
Speed 1/min : 250
C-rod trav.mm : 6.60...7.00
C-rod trav.mm : 2.00
Speed 1/min : 350...390

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 850
C-rod trav.mm : 13.30...13.40
2nd speed 1/min : 1000
C-rod trav.mm : 13.20...13.40

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 600
Pressure hPa : 1000
Contr.-rod trav.mm: 13.10...13.20

Measurement

Speed 1/min : 600
1st pressure hPa : -
C-rod trav.mm : 10.10...10.30
2nd pressure hPa : 570
C-rod trav.mm : 12.40...12.50
3rd pressure hPa : 310
C-rod trav.mm : 10.70...11.00

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 600
Del.quantity cm3/ : 144.0...146.0
1000H.: (141.0...149.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.10
Speed 1/min : 1035...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 260.0...300.0
1000H.: (256.0...304.0)

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 6.60...7.00
Del.quantity cm3/ : 14.0...20.0
1000H.: (11.0...23.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 D2
Edition : 12.11.87
Superceeded : 9.10.87
Calibrating oil : ISO-4113

Combination no. : 0 401 846 835

Injection pump
Pump designation : PE6P120A32ORS3183-1
EP type number : 0 411 826 758
Governor
Governor design. : RQ250/1000PA832
Governor no. : 0 421 801 368

Customer-spec. information
Customer : DAF

Engine : WS 259

1st version kW : 259.0
Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 850

Contr.-rod trav.mm: 12.10...12.20

Del.quantity cm3/ : 20.0...20.2
 100H.: (19.7...20.5)

Dispersion cm3/ : 0.5
 100H.: (0.9)

2nd speed 1/min: 250.0
Contr.-rod trav. m: 6.6...7.0
Del.quantity cm3/ : 1.6...2.2
 100H.: (1.3...2.5)
Dispersion cm3/ : 0.8
 100H.: (1.2)

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 550
Contr.-rod travelmm: 15.20...16.40

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 850
Charge press. hPa : 1000
Del.quantity cm3/ : 200.0...202.0
 1000H.: (197.0...205.0)
Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:
Speed 1/min : 550
Contr.-rod trav.mm: 15.8

Testing:

1st c-rod trav.mm : 11.10
Speed 1/min : 1035...1050
2nd c-rod trav.mm : 4.00
Speed 1/min : 1125...1155

4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 250
Contr.-rod trav.mm: 6.8

Testing:

Speed 1/min : 100
C-rod trav.mm min : 8.30
Speed 1/min : 250
C-rod trav.mm : 6.60...7.00
C-rod trav.mm : 2.00
Speed 1/min : 350...390

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 850
C-rod trav.mm : 12.30...12.40
2nd speed 1/min : 1000
C-rod trav.mm : 12.20...12.40

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 600
Pressure hPa : 1000
Contr.-rod trav.mm: 12.10...12.20

Measurement

Speed 1/min : 600
1st pressure hPa : -
C-rod trav.mm : 10.10...10.30
2nd pressure hPa : 430
C-rod trav.mm : 11.60...11.70
3rd pressure hPa : 280
C-rod trav.mm : 10.50...10.70

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 600
Del.quantity cm3/ : 144.0...146.0
1000H.: (141.0...149.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 11.10
Speed 1/min : 1035...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 260.0...300.0
1000H.: (256.0...304.0)

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 6.60...7.00
Del.quantity cm3/ : 16.0...22.0
1000H.: (13.0...25.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 E2
Edition : 12.11.87
Superceeded : 9.10.87
Calibrating oil : ISO-4113

Combination no. : 0 401 846 840

Injection pump
Pump designation : PE6P120A32ORS3183-1Z
EP type number : 0 411 826 760
Governor
Governor design. : RQV250...1000PA851-1
Governor no. : 0 421 813 605

Customer-spec. information
Customer : DAF

Engine : WS 225

1st version kW : 225.0
Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 850

Contr.-rod trav.mm: 11.30...11.40

Del.quantity cm3/ : 18.1...18.3

100H.: (17.8...18.6)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0
Contr.-rod trav. m: 6.6...7.0
Del.quantity cm3/ : 1.4...2.0
100H.: (1.1...2.3)
Dispersion cm3/ : 0.8
100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250
Sleeve travel mm: 1.30...1.70
2nd speed 1/min: 400
Sleeve travel mm: 3.20...3.60
3rd speed 1/min: 800
Sleeve travel mm: 5.80...6.20
4th speed 1/min: 1000
Sleeve travel mm: 7.90...8.10

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1040
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 850
Charge press. hPa : 1000
Del.quantity cm3/ : 181.0...183.0
1000H.: (178.0...186.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 50...58

Testing:

1st c-rod trav.mm : 10.30
Speed 1/min : 1040...1050
2nd c-rod trav.mm : 4.00
Speed 1/min : 1120...1150
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 15...23

Testing:

Speed 1/min : 100
C-rod trav.mm min : 8.30
Speed 1/min : 250
C-rod trav.mm : 6.60...7.00

CONSTANT REGULATION

Speed 1/min : 275...385

Adjustment test, manifold-pressure
compensator (LDA, ADA, ALDA)

1st version

Setting
Speed 1/min : 600
Pressure hPa : 1000
Contr.-rod trav.mm: 11.30...11.40

Measurement

Speed 1/min : 600
1st pressure hPa : -
C-rod trav.mm : 10.10...10.30
2nd pressure hPa : 330
C-rod trav.mm : 11.00...11.10
3rd pressure hPa : 260
C-rod trav.mm : 10.50...10.70

SWITCH-OVER POINT

Speed 1/min : 200 (220)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 600
Del.quantity cm3/ : 144.0...146.0
1000H.: (141.0...149.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.30
Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 260.0...300.0
1000H.: (256.0...304.0)

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 6.60...7.00
Del.quantity cm3/ : 14.0...20.0
1000H.: (11.0...23.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 E3
Edition : 12.11.87
Superceeded : 9.10.87
Calibrating oil : ISO-4113

Combination no. : 0 401 846 841

Injection pump
Pump designation : PE6P120A32ORS3183-1
EP type number : 0 411 826 758
Governor
Governor design. : RQV250...1000PA851-2
Governor no. : 0 421 813 606

Customer-spec. information
Customer : DAF

Engine : WS 259

1st version kW : 259.0
Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(F) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 850

Contr.-rod trav.mm: 12.10...12.20

Del.quantity cm3/ : 20.0...20.2
 100H.: (19.7...20.5)

Dispersion cm3/ : 0.5
 100H.: (0.9)

2nd speed 1/min: 250.0
Contr.-rod trav. m: 6.6...7.0
Del.quantity cm3/ : 1.4...2.0
 100H.: (1.1...2.3)
Dispersion cm3/ : 0.8
 100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250
Sleeve travel mm: 1.30...1.70
2nd speed 1/min: 400
Sleeve travel mm: 3.20...3.60
3rd speed 1/min: 800
Sleeve travel mm: 5.80...6.20
4th speed 1/min: 1000
Sleeve travel mm: 7.90...8.10

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1040
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 850
Charge press. hPa : 1000
Del.quantity cm3/ : 200.0...202.0
 1000H.: (197.0...205.0)
Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 51...59

Testing:

1st c-rod trav.mm : 11.10
Speed 1/min : 1040...1050
2nd c-rod trav.mm : 4.00
Speed 1/min : 1120...1150
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 16...24

Testing:

Speed 1/min : 100
C-rod trav.mm min : 8.30
Speed 1/min : 250
C-rod trav.mm : 6.60...7.00

CONSTANT REGULATION

Speed 1/min : 275...385

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 600
Pressure hPa : 1000
Contr.-rod trav.mm: 12.10...12.20

Measurement

Speed 1/min : 600
1st pressure hPa : -
C-rod trav.mm : 10.10...10.30
2nd pressure hPa : 430
C-rod trav.mm : 11.60...11.70
3rd pressure hPa : 280
C-rod trav.mm : 10.50...10.70

SWITCH-OVER POINT

Speed 1/min : 200 (0)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 600
Del.quantity cm3/ : 144.0...146.0
 1000H.: (141.0...149.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 11.10
Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 260.0...300.0
1000H.: (256.0...304.0)

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 6.60...7.00
Del.quantity cm3/ : 14.0...20.0
1000H.: (11.0...23.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 13,8 I2
Edition : 12.11.87
Superceeded : 27.3.87
Calibrating oil : ISO-4113

Combination no. : 0 401 846 843

Injection pump
Pump designation : PE6P120A72ORS3069
EP type number : 0 411 826 712
Governor
Governor design. : RQV300...1000PA501-4
Governor no. : 0 421 813 609

Customer-spec. information
Customer : IVECO-FIAT

Engine : 8210.22.373

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 12.50...12.60

Del.quantity cm3/ : 20.5...20.7

100H.: (20.2...21.0)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.0...6.4

Del.quantity cm3/ : 1.7...2.3

100H.: (1.4...2.6)

Dispersion cm3/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 325

Sleeve travel mm: 1.50...1.90

2nd speed 1/min: 450

Sleeve travel mm: 2.90...3.30

3rd speed 1/min: 800

Sleeve travel mm: 5.70...6.10

4th speed 1/min: 1000

Sleeve travel mm: 8.00...8.20

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1035

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Charge press. hPa : 700

Del.quantity cm3/ : 205.0...207.0

1000H.: (202.0...210.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

L06

1st version

Control-lever

position degrees: 60...68

Testing:

1st c-rod trav.mm : 11.50

Speed 1/min : 1040...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1130...1160

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 8...16

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.70

Speed 1/min : 300

C-rod trav.mm : 6.00...6.40

C-rod trav.mm : 2.00

CONSTANT REGULATION

Speed 1/min : 320...420

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.80...10.00

2nd pressure hPa : 280

C-rod trav.mm : 11.80...11.90

3rd pressure hPa : 230

C-rod trav.mm : 10.70...11.00

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 500

Del.quantity cm3/ : 211.0...217.0

1000H.: (208.0...220.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 131.0...133.0

1000H.: (128.0...136.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 11.50
Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 180.0...200.0
1000H.: (176.0...204.0)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 13,8 H1
 Edition : 07.12.87
 Superceeded : 13.5.87
 Calibrating oil : ISO-4113
 Combination no. : 0 401 846 844
 Injection pump
 Pump designation : PE6P120A72ORS3069
 EP type number : 0 411 826 712
 Governor
 Governor design. : RQ300/1000PA502-1
 Governor no. : 0 421 801 388

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8210.22.371

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing[°]CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 12.50...12.60

Del.quantity cm3/ : 20.5...20.7

100H.: (20.2...21.0)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.0...6.4

Del.quantity cm3/ : 1.7...2.3

100H.: (1.4...2.6)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Charge press. hPa : 700

Del.quantity cm3/ : 205.0...207.0

1000H.: (202.0...210.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 11.40

Speed 1/min : 1045...1060

2nd c-rod trav.mm : 4.00

Speed 1/min : 1135...1165

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 6.2

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.70

Speed 1/min : 300

C-rod trav.mm : 6.00...6.40

C-rod trav.mm : 2.00

Speed 1/min : 360...400

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1000

C-rod trav.mm : 13.00...13.10

2nd speed 1/min : 600

C-rod trav.mm : 13.00...13.20

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.80...10.00

2nd pressure hPa : 280

C-rod trav.mm : 11.80...11.90

3rd pressure hPa : 220

C-rod trav.mm : 10.70...11.00

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 500

Del.quantity cm3/ : 211.0...217.0

1000H.: (208.0...220.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 131.0...133.0

1000H.: (128.0...136.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.40

Speed 1/min : 1045...1060

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 180.0...200.0

1000H.: (176.0...204.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 E 9
Edition : 12.11.87
Superceeded : 18.9.87
Calibrating oil : ISO-4113
Combination no. : 0 401 846 858
Injection pump
Pump designation : PE6P120A320LS3810-10
EP type number : 0 411 826 734
Governor
Governor design. : RQ300/1150PA511-4
Governor no. : 0 421 801 341

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing°CS: 0-45-120-165-240-285
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 10.40...10.50

Del.quantity cm3/ : 15.8...16.0

100H.: (15.5...16.3)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 4.8...5.0
Del.quantity cm3/ : 1.4...2.0
100H.: (1.1...2.3)
Dispersion cm3/ : 0.8
100H.: (1.2)

SLEEVE POSITION

Control-lever position
Degree: -2
Speed 1/min: 600
Cont.-rod travelmm: 19.10...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1150
Charge press. hPa : 700
Del.quantity cm3/ : 158.0...160.0
1000H.: (155.0...163.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Setting point:
Speed 1/min : 600
Contr.-rod trav.mm: 19.9

Testing:

1st c-rod trav.mm : 9.40
Speed 1/min : 1195...1210
2nd c-rod trav.mm : 4.00
Speed 1/min : 1250...1280
4th speed 1/min : 1360
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 4.9

Testing:

Speed 1/min : 200
C-rod trav.mm min : 6.70
Speed 1/min : 300
C-rod trav.mm : 4.80...5.00
C-rod trav.mm : 2.00
Speed 1/min : 360...390

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : -
Contr.-rod trav.mm: 10.00...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : 340
C-rod trav.mm : 10.20...10.30

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700
Speed 1/min : 600
Del.quantity cm3/ : 157.0...163.0
1000H.: (154.0...166.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)

Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 139.0...142.0
1000H.: (136.0...145.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.40
Speed 1/min : 1195...1210

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ENA 11,9 C
Edition : 20.11.87
Superceeded : 18.9.87
Calibrating oil : ISO-4113
Combination no. : 0 401 846 860
Injection pump
Pump designation : PE6P120A32ORS3200
EP type number : 0 411 826 766
Governor
Governor design. : RQV250...1000PA808-1
Governor no. : 0 421 813 660

Customer-spec. information
Customer : ENASA

Engine : 96 R1 BX

1st version kW : 265.0
Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
: (3.75...3.95)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 12.00...12.10

Del.quantity cm3/ : 25.6...25.8

100H.: (25.3...26.1)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.1...3.5

Del.quantity cm3/ : 1.7...2.3
100H.: (1.4...2.6)

Dispersion cm3/ : 0.8
100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250
Sleeve travel mm: 1.00...1.40

2nd speed 1/min: 350
Sleeve travel mm: 1.70...2.30

3rd speed 1/min: 700
Sleeve travel mm: 4.70...5.30

4th speed 1/min: 1045
Sleeve travel mm: 8.00...8.20

5th speed 1/min: 1135
Sleeve travel mm: 9.10...9.40

SLEEVE POSITION

Control-lever position
Degree: -1

Speed 1/min: 1090
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 600
Charge press. hPa : 1200

Del.quantity cm3/ : 256.0...258.0
1000H.: (253.0...261.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 42...50

Testing:
1st c-rod trav.mm : 11.00
Speed 1/min : 1050...1060
2nd c-rod trav.mm : 4.00
Speed 1/min : 1130...1160
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 5...13

Testing:
Speed 1/min : 100
C-rod trav.mm min : 4.80
Speed 1/min : 250
C-rod trav.mm : 3.10...3.50

CONSTANT REGULATION

Speed 1/min : 250...330

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1200
Contr.-rod trav.mm: 12.00...12.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.50...8.90
2nd pressure hPa : 710
C-rod trav.mm : 11.30...11.40
3rd pressure hPa : 440
C-rod trav.mm : 9.50...9.70

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1200
Speed 1/min : 900
Del.quantity cm3/ : 249.0...255.0
1000H.: (246.0...258.0)

Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 151.0...153.0
1000H.: (148.0...156.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 11.00
Speed 1/min : 1050...1060

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 230.0...260.0
1000H.: (226.0...264.0)

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 3.10...3.50
Del.quantity cm3/ : 17.0...23.0
1000H.: (14.0...26.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
APPLICATION
Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 U
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 401 846 872

Injection pump
Pump designation : PE6P120A32OLS3815-12
EP type number : 0 411 826 770
Governor
Governor design. : RQV300..1050PA880
Governor no. : 0 421 801 418

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 441 A

1st version kW : 191.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
(3.55...3.75)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 13.10...13.30

Del.quantity cm3/ : 19.0...19.2

100H.: (18.7...19.5)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 5.4...5.6
Del.quantity cm3/ : 1.4...2.2
100H.: (1.1...2.5)
Dispersion cm3/ : 0.8
100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300
Sleeve travel mm: 1.20...1.40
2nd speed 1/min: 600
Sleeve travel mm: 4.90...5.10
3rd speed 1/min: 800
Sleeve travel mm: 5.80...6.20
4th speed 1/min: 1080
Sleeve travel mm: 7.70...8.10
5th speed 1/min: 1130
Sleeve travel mm: 8.50...9.00

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1100
Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600
Charge press. hPa : 700
Del.quantity cm3/ : 190.0...192.0
1000H.: (187.0...195.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 48...56
Testing:
1st c-rod trav.mm : 11.60
Speed 1/min : 1090...1100
2nd c-rod trav.mm : 4.00
Speed 1/min : 1170...1200
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever
position degrees: 14...22

Testing:
Speed 1/min : 100
C-rod trav.mm min : 6.90
Speed 1/min : 300
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 390...430

TORQUE CONTROL

2nd speed 1/min : 1050
C-rod trav.mm : 12.30...12.50
3rd speed 1/min : 700
C-rod trav.mm : 13.50...13.70

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 600
Pressure hPa : 700
Contr.-rod trav.mm: 13.10...13.30

Measurement

Speed 1/min : 600
1st pressure hPa : 350
C-rod trav.mm : 11.10...11.30
2nd pressure hPa : 550
C-rod trav.mm : 12.70...12.90
3rd pressure hPa : 780
C-rod trav.mm : 13.20...13.30
4th pressure hPa : 1100
C-rod trav.mm : 13.45...13.55

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1100
Speed 1/min : 1050
Del.quantity cm3/ : 184.0...187.0
1000H.: (181.0...190.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1100
Speed 1/min : 700
Del.quantity cm3/ : 204.0...208.0
1000H.: (201.0...211.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 129.0...131.0
1000H.: (126.0...134.0)
Dispersion cm3/ : 8.00
1000H.: (-)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.60
Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 190.0...210.0
1000H.: (186.0...214.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 C 3
Edition : 07.12.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 401 848 790

Injection pump
Pump designation : PE8P110A32OLS3842
EP type number : 0 411 818 714
Governor
Governor design. : RQ300/1050PA187-17
Governor no. : 0 421 801 410

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 192.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing^oCS: 0-45-90-135-180-225-
 270-315
Tolerance + - ^o : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 11.50...11.60

Del.quantity cm3/ : 11.7...11.9

100H.: (11.4...12.1)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 8.4...8.6
Del.quantity cm3/ : 1.5...2.1
100H.: (1.2...2.3)
Dispersion cm3/ : 0.4
100H.: (0.7)

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 600
Contr.-rod travelmm: 13.20...14.20

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1050
Del.quantity cm3/ : 117.0...119.0
1000H.: (114.5...121.5)
Dispersion cm3/ : 4.00
1000H.: (8.00)

HIGHEST RATED SPEED

1st version

Setting point:
Speed 1/min : 600
Contr.-rod trav.mm: 13.7

Testing:
1st c-rod trav.mm : 10.50

Speed 1/min : 1095...1110
2nd c-rod trav.mm : 4.00
Speed 1/min : 1145...1175
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 8.5

Testing:

Speed 1/min : 200
C-rod trav.mm min : 10.00
Speed 1/min : 300
C-rod trav.mm : 8.40...8.60
C-rod trav.mm : 2.00
Speed 1/min : 425...485

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 600
Del.quantity cm3/ : 97.0...100.0
1000H.: (94.0...103.0)
Dispersion cm3/ : 8.00
1000H.: (11.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.50

Speed 1/min : 1095...1110

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 D 4
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 401 848 791
Injection pump
Pump designation : PE8P110A32OLS3842
EP type number : 0 411 818 714
Governor
Governor design. : RQV300...1050PA829-3
K
Governer no. : 0 421 815 172

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 213.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
SD ang. spacing°CS: 270-315
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 1050
Contr.-rod trav.mm: 12.90...13.00
Del.quantity cm3/ : 13.2...13.4
100H.: (12.9...13.6)
Dispersion cm3/ : 0.4
100H.: (0.8)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 8.8...9.0
Del.quantity cm3/ : 1.5...2.1
100H.: (1.2...2.3)
Dispersion cm3/ : 0.4
100H.: (0.7)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300
Sleeve travel mm: 1.10...1.30
2nd speed 1/min: 500
Sleeve travel mm: 3.70...4.00
3rd speed 1/min: 800
Sleeve travel mm: 5.80...6.10
4th speed 1/min: 1090
Sleeve travel mm: 8.10...8.50
5th speed 1/min: 1170
Sleeve travel mm: 9.50...10.00

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1050
Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050
Del.quantity cm3/ : 132.0...134.0
1000H.: (129.5...136.5)
Dispersion cm3/ : 4.00
1000H.: (8.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 1050
Contr.-rod trav.mm: 16.5

Testing:

1st c-rod trav.mm : 11.90
Speed 1/min : 1090...1100
2nd c-rod trav.mm : 4.00
Speed 1/min : 1150...1180
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 8.9

Testing:

Speed 1/min : 200
C-rod trav.mm min : 10.50
Speed 1/min : 300
C-rod trav.mm : 8.80...9.00

CONSTANT REGULATION

Speed 1/min : 300...500

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1050
C-rod trav.mm : 12.90...13.00
2nd speed 1/min : 600
C-rod trav.mm : 12.90...13.10
3rd speed 1/min : 900
C-rod trav.mm : 13.40...13.60

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 600
Del.quantity cm3/ : 119.0...122.0
1000H.: (116.0...125.0)
Dispersion cm3/ : 6.00
1000H.: (9.00)
Speed 1/min : 900

Del.quantity cm3/ : 130.0...134.0
1000H.: (127.0...137.0)
Dispersion cm3/ : 6.00
1000H.: (9.00)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.90

Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 C 5
Edition : 20.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 401 848 794

Injection pump
Pump designation : PE8P110A320LS3842
EP type number : 0 411 818 714
Governor
Governor design. : RQ300/1050PA187-18
Governor no. : 0 421 801 133

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 213.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing^oCS: 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 750

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm3/ : 12.1...12.3

 100H.: (11.8...12.5)

Dispersion cm3/ : 0.4

 100H.: (0.7)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 8.6...8.8
Del.quantity cm3/ : 1.5...2.1
 100H.: (1.2...2.3)
Dispersion cm3/ : 0.4
 100H.: (0.7)

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 650
Contr.-rod travelmm: 13.00...14.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 750
Del.quantity cm3/ : 121.0...123.0
 1000H.: (118.5...125.5)
Dispersion cm3/ : 4.00
 1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Setting point:
Speed 1/min : 650
Contr.-rod trav.mm: 13.5

Testing:
1st c-rod trav.mm : 11.60

Speed 1/min : 1095...1110
2nd c-rod trav.mm : 4.00
Speed 1/min : 1150...1180
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 6.9

Testing:

Speed 1/min : 200
C-rod trav.mm min : 8.50
Speed 1/min : 300
C-rod trav.mm : 6.80...7.00
C-rod trav.mm : 2.00
Speed 1/min : 400...440

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 1050
Del.quantity cm3/ : 131.0...135.0
 1000H.: (128.0...138.0)
Dispersion cm3/ : 7.00
 1000H.: (10.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 600

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.60
Speed 1/min : 1095...1110

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0
 1000H.: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 E 6
 Edition : 20.11.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 401 849 738
 Injection pump
 Pump designation : PE10P120A320LS3824-10
 EP type number : 0 411 829 701
 Governor
 Governor design. : RQV300...1150PA867
 Governor no. : 0 421 813 630

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 423 LA

1st version kW : 386.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 130...150

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 18,2 C
 Edition : 20.11.87
 Superceeded : 26.6.87
 Calibrating oil : ISO-4113
 Combination no. : 0 401 849 734
 Injection pump
 Pump designation : PE10P120A520/4LS3843
 EP type number : 0 411 829 707
 Governor
 Governor design. : RQ300/1000PA837
 Governor no. : 0 421 801 372

Cust. part no. : 2-7778

Customer-spec. information
 Customer : MAN

Engine : D284OLF

1st version kW : 338.0
 Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

L24

Test pressure, bar: 25...27

Prestroke mm : 3.90...4.00
 : (3.85...4.05)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

SD ang. spacing°CS: 0-45-72-117-144-189-
 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

BASIC SETTING

1st speed 1/mi: 1000

 Contr.-rod trav.mm: 11.30...11.40

 Del.quantity cm3/ : 20.1...20.3

 100H.: (19.8...20.6)

 Dispersion cm3/ : 0.5

 100H.: (0.9)

2nd speed 1/min: 300.0
 Contr.-rod trav. m: 6.0...6.2
 Del.quantity cm3/ : 1.7...2.3
 100H.: (1.4...2.6)
 Dispersion cm3/ : 0.8
 100H.: (1.2)

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 600
 Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 1000
 Charge press. hPa : 1000
 Del.quantity cm3/ : 201.0...203.0
 1000H.: (198.0...206.0)
 Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
 Setting point:
 Speed 1/min : 600
 Contr.-rod trav.mm: 20.0

Testing:
1st c-rod trav.mm : 10.30
Speed 1/min : 1045...1060
2nd c-rod trav.mm : 4.00
Speed 1/min : 1125...1155
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 6.1

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.60
Speed 1/min : 300
C-rod trav.mm : 6.00...6.20
C-rod trav.mm : 2.00
Speed 1/min : 365...405

TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1000
C-rod trav.mm : 11.80...11.90
2nd speed 1/min : 600
C-rod trav.mm : 11.80...12.00

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 11.30...11.40

Measurement
Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 10.10...10.20
2nd pressure hPa : 530
C-rod trav.mm : 10.40...10.50
3rd pressure hPa : 650
C-rod trav.mm : 10.90...11.10

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 500

Del.quantity cm3/ : 144.0...146.0
1000H.: (141.0...149.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.30
Speed 1/min : 1045...1060

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 190.0...210.0
1000H.: (186.0...214.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 6.00...6.20
Del.quantity cm3/ : 17.0...23.0
1000H.: (14.0...26.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks: : MAN-NR. 2-7778

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

SD ang. spacing°CS: 0-45-72-117-144-189-
 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

BASIC SETTING

1st speed 1/mi: 1150

 Contr.-rod trav.mm: 12.00...12.10

 Del.quantity cm3/ : 18.6...18.8

 100H.: (18.3...19.1)

 Dispersion cm3/ : 0.5

 100H.: (0.8)

 2nd speed 1/min: 300.0
 Contr.-rod trav. m: 5.0...5.2
 Del.quantity cm3/ : 1.6...2.2
 100H.: (1.3...2.5)
 Dispersion cm3/ : 0.8
 100H.: (1.2)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300
 Sleeve travel mm: 1.40...1.60
 2nd speed 1/min: 550
 Sleeve travel mm: 5.00...5.20
 3rd speed 1/min: 900
 Sleeve travel mm: 6.40...6.60
 4th speed 1/min: 1200
 Sleeve travel mm: 8.60...8.80
 5th speed 1/min: 1250
 Sleeve travel mm: 9.60...10.00

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 1185
 Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 1150
 Charge press. hPa : 700
 Del.quantity cm3/ : 186.0...188.0
 1000H.: (183.0...191.0)
 Dispersion cm3/ : 5.00
 1000H.: (8.00)

HIGHEST RATED SPEED

1st version
 Control-lever
 position degrees: 51...59

Testing:
 1st c-rod trav.mm : 11.00
 Speed 1/min : 1190...1200
 2nd c-rod trav.mm : 4.00
 Speed 1/min : 1235...1265
 4th speed 1/min : 1350
 C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever
 position degrees: 15...23

Testing:
 Speed 1/min : 100
 C-rod trav.mm min : 6.50
 Speed 1/min : 300
 C-rod trav.mm : 5.00...5.20

CONSTANT REGULATION

Speed 1/min : 300...400

Adjustment test, manifold-pressure
 compensator (LDA,ADA,ALDA)

1st version
 Setting
 Speed 1/min : 500
 Pressure hPa : -
 Contr.-rod trav.mm: 10.30...10.60

Measurement
 Speed 1/min : 500

1st pressure hPa : 390
 C-rod trav.mm : 10.70...10.90

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 700
Speed 1/min : 750
Del. quantity cm3/ : 193.0...196.0
1000H.: (190.0...199.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del. quantity cm3/ : 146.0...148.0
1000H.: (143.0...151.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.00
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm3/ : 160.0...180.0
1000H.: (156.0...184.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 7,1 A 2
 Edition : 20.11.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : O 401 876 320
 Injection pump
 Pump designation : PE6P110A32ORS492
 EP type number : O 411 816 161
 Governor
 Governor design. : RSV200...1100P1A305-
 2
 Governor no. : O 421 833 202
 Customer-spec. information
 Customer : VOLVO-PENTA
 Engine : TJD71AP

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Calibrating nozzle-holder
 assembly : O 681 343 009
 Opening
 pressure, bar : 172...175
 Test inj. tubing : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm³/ : 9.8...10.0

100H.: (9.5...10.3)

Dispersion cm³/ : 0.4

100H.: (0.7)

2nd speed 1/min: 200.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm³/ : 1.6...2.2

Dispersion cm³/ : 0.3

100H.: (0.6)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 4.25

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm³/ : 98.0...100.0

1000H.: (95.0...103.0)

Dispersion cm³/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 50...58

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1110...1120

2nd c-rod trav.mm : 4.00

Speed 1/min : 1140...1170

4th speed 1/min : 1300

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

M02

Control-lever

position degrees: 13...21

Setting point w/out aux. spring

Speed 1/min : 200

Contr.-rod trav.mm: 5.0

Speed 1/min : 200

C-rod trav.mm : 5.40...5.60

C-rod trav.mm : 2.00

Speed 1/min : 280...340

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00

Speed 1/min : 1110...1120

Remarks:

:

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 Q 4
Edition : 07.12.87
Superceeded : 12.9.86
Calibrating oil : ISO-4113

Combination no. : 0 401 876 740

Injection pump
Pump designation : PE6P120A32OLS3815-10
EP type number : 0 411 826 735
Governor
Governor design. : RSV750...1150P1A820-4
Governor no. : 0 421 833 179

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing°CS: 0-45-120-165-240-285
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 1180

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 16.3...16.5
100H.: (16.0...16.8)

Dispersion cm3/ : 0.5
100H.: (0.9)

2nd speed 1/min: 750.0
Contr.-rod trav. m: 3.3...3.5
Del.quantity cm3/ : 1.8...2.4
100H.: (1.5...2.7)
Dispersion cm3/ : 0.8
100H.: (1.2)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1180
Del.quantity cm3/ : 163.0...165.0
1000H.: (160.0...168.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 56...64

Testing:
1st c-rod trav.mm : 10.00

Speed 1/min : 1210...1220
2nd c-rod trav.mm : 4.00
Speed 1/min : 1235...1255
4th speed 1/min : 1350
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 32...40
Setting point w/out aux. spring
Speed 1/min : 750
Contr.-rod trav.mm: 3.4
Speed 1/min : 750
C-rod trav.mm : 3.30...3.50
C-rod trav.mm : 2.00
Speed 1/min : 755...815

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1180
C-rod trav.mm : 11.00...11.10
2nd speed 1/min : 975
C-rod trav.mm : 11.60...11.80
3rd speed 1/min : 600
C-rod trav.mm : 11.80...12.00

SWITCH-OVER POINT

Speed 1/min : 5 (0)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 975
Del.quantity cm3/ : 174.0...180.0
1000H.: (171.0...183.0)
Dispersion cm3/ : 8.00
1000H.: (12.)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00
Speed 1/min : 1210...1220

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

M04

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 Q 8
Edition : 07.12.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 401 876 740A

Injection pump
Pump designation : PE6P120A32OLS3815-10
EP type number : 0 411 826 735
Governor
Governor design. : RSV750...1150P1A820-4
Governer no. : 0 421 833 179

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing°CS: 0-45-120-165-240-285
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 1180

Contr.-rod trav.mm: 10.40...10.50

Del.quantity cm3/ : 15.3...15.5

100H.: (15.0...15.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 750.0

Contr.-rod trav. m: 3.3...3.5

Del.quantity cm3/ : 1.8...2.4

100H.: (1.5...2.7)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1180

Del.quantity cm3/ : 153.0...155.0

1000H.: (150.0...158.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

Testing:

1st c-rod trav.mm : 9.40
Speed 1/min : 1210...1220
2nd c-rod trav.mm : 4.00
Speed 1/min : 1235...1255
4th speed 1/min : 1350
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 32...40
Setting point w/out aux. spring
Speed 1/min : 750
Contr.-rod trav.mm: 3.4
Speed 1/min : 750
C-rod trav.mm : 3.30...3.50
C-rod trav.mm : 2.00
Speed 1/min : 755...815

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1180
C-rod trav.mm : 10.40...10.50
2nd speed 1/min : 975
C-rod trav.mm : 11.00...11.20
3rd speed 1/min : 600
C-rod trav.mm : 11.30...11.50

SWITCH-OVER POINT

Speed 1/min : 5 (0)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 975
Del.quantity cm3/ : 164.0...168.0
1000H.: (161.0...171.0)
Dispersion cm3/ : 8.00
1000H.: (12.)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.40
Speed 1/min : 1210...1220

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

:

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 P 1
Edition : 07.12.87
Superceeded : 21.8.87
Calibrating oil : ISO-4113

Combination no. : 0 401 878 703

Injection pump
Pump designation : PE8P120A32OLS3816-10
EP type number : 0 411 828 715
Governor
Governor design. : RSV650...1150POA823
Governor no. : 0 421 833 166

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM422A

1st version kW : 206.0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 1180

Contr.-rod trav.mm: 9.30...9.40

Del.quantity cm3/ : 13.7...13.9

100H.: (13.4...14.2)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 650.0

Contr.-rod trav. m: 3.4...3.6

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1180

Del.quantity cm3/ : 137.0...139.0

1000H.: (134.0...142.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 42...50

Testing:
1st c-rod trav.mm : 8.30
Speed 1/min : 1210...1220
2nd c-rod trav.mm : 4.00
Speed 1/min : 1235...1255
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 20...28
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 3.6
Speed 1/min : 650
C-rod trav.mm : 3.50...3.70
C-rod trav.mm : 2.00
Speed 1/min : 655...695

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1180
C-rod trav.mm : 9.30...9.40
2nd speed 1/min : 975
C-rod trav.mm : 10.10...10.20
3rd speed 1/min : 1075
C-rod trav.mm : 9.60...9.80
4th speed 1/min : 700
C-rod trav.mm : 10.10...10.30

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 950
Del.quantity cm3/ : 154.0...158.0
1000H.: (151.0...161.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.30
Speed 1/min : 1210...1220

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 P 6
Edition : 07.12.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 401 878 703A

Injection pump
Pump designation : PE8P120A32OLS3816-10
EP type number : 0 411 828 715
Governor
Governor design. : RSV650...1150POA823
Governor no. : 0 421 833 166

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM422A

1st version kW : 206.0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6,00X1,50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 1180

Contr.-rod trav.mm: 9.00...9.10

Del.quantity cm3/ : 13.3...13.5

100H.: (13.0...13.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 650.0

Contr.-rod trav. m: 3.4...3.6

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1180

Del.quantity cm3/ : 133.0...135.0

1000H.: (130.0...138.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 42...50

Testing:

1st c-rod trav.mm : 8.00
Speed 1/min : 1210...1220
2nd c-rod trav.mm : 4.00
Speed 1/min : 1235...1255
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 20...28
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 3.6
Speed 1/min : 650
C-rod trav.mm : 3.50...3.70
C-rod trav.mm : 2.00
Speed 1/min : 655...695

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1180
C-rod trav.mm : 9.00...9.10
2nd speed 1/min : 975
C-rod trav.mm : 9.80...10.00
3rd speed 1/min : 1075
C-rod trav.mm : 9.30...9.50
4th speed 1/min : 700
C-rod trav.mm : 9.80...10.00

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 950
Del.quantity cm3/ : 145.0...149.0
1000H.: (142.0...152.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.00
Speed 1/min : 1210...1220

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

:

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,9A19
Edition : 07.12.87
Superceeded : 12.9.86
Calibrating oil : ISO-4113

Combination no. : 0 402 036 058

Injection pump
Pump designation : PES6P120A720/3LS470-
2
EP type number : 0 412 026 050
Governor
Governor design. : RQ300/1100PA684-1
Governor no. : 0 421 801 344

Cust. part no. : 2-7756

Customer-spec. information
Customer : MAN

Engine : D2866LF

1st version kW : 243.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 750

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm3/ : 20.2...20.4
100H.: (19.9...20.7)

Dispersion cm3/ : 0.5
100H.: (0.9)

2nd speed 1/min: 300.0
Contr.-rod trav. m: 4.7...4.9
Del.quantity cm3/ : 1.2...1.8
100H.: (0.9...2.1)
Dispersion cm3/ : 0.8
100H.: (1.2)

SLEEVE POSITION

Control-lever position
Degree: -2
Speed 1/min: 600
Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 750
Charge press. hPa : 1000
Del.quantity cm3/ : 202.0...204.0
1000H.: (199.0...207.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:
Speed 1/min : 600
Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 9.50
Speed 1/min : 1145...1160
2nd c-rod trav.mm : 4.00
Speed 1/min : 1185...1215
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 4.8

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.30
Speed 1/min : 300
C-rod trav.mm : 4.70...4.90
C-rod trav.mm : 2.00
Speed 1/min : 340...380

TORQUE CONTROL

Dimension a mm : 0.50
Torque-control curve - 1st version
1st speed 1/min : 750
C-rod trav.mm : 11.90...12.20
2nd speed 1/min : 1100
C-rod trav.mm : 10.60...10.80
3rd speed 1/min : 875
C-rod trav.mm : 11.80...12.00
4th speed 1/min : 950
C-rod trav.mm : 11.20...11.50

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.90...9.10
2nd pressure hPa : 85
C-rod trav.mm : 9.30...9.40
3rd pressure hPa : 280
C-rod trav.mm : 10.50...10.90

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1000
Speed 1/min : 1100
Del.quantity cm3/ : 203.0...207.0
1000H.: (200.0...210.0)
Charge press. hPa : 1000
Speed 1/min : 650
Del.quantity cm3/ : 198.0...204.0
1000H.: (195.0...207.0)
Charge press. hPa : 280
Speed 1/min : 500
Del.quantity cm3/ : 184.0...196.0
1000H.: (181.0...199.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 132.0...134.0
1000H.: (129.0...137.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.50
Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 225.0...245.0
1000H.: (221.0...249.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 4.70...4.90
Del.quantity cm3/ : 12.0...18.0
1000H.: (9.0...21.0)
Dispersion cm3/ : 8.00
1000H.: (12.00)

Remarks:

: MAN-NR. 2-7756

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,9 G6
 Edition : 07.12.87
 Superseded : 18.8.87
 Calibrating oil : ISO-4113
 Combination no. : 0 402 036 064
 Injection pump
 Pump designation : PES6P110A720/3LS477-
 2
 EP type number : 0 412 016 071
 Governor
 Governor design. : RQ250/1100PA817-1
 Governor no. : 0 421 801 362

Customer-spec. information
 Customer : MAN

Engine : D2866UH/200

1st version kW : 150.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 10.50...10.60

Del.quantity cm3/ : 9.1...9.4

100H.: (8.8...9.6)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 6.1...6.3

Del.quantity cm3/ : 1.5...2.0

100H.: (1.2...2.2)

Dispersion cm3/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Del.quantity cm3/ : 91.0...94.0

1000H.: (88.5...96.5)

Dispersion cm3/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 9.50

Speed 1/min : 1145...1160

2nd c-rod trav.mm : 4.00

Speed 1/min : 1215...1245

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 250

Contr.-rod trav.mm: 6.2

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.70

Speed 1/min : 250

C-rod trav.mm : 6.10...6.30

C-rod trav.mm : 2.00

Speed 1/min : 330...370

TORQUE CONTROL

Dimension a mm : -

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 10.50...10.60

2nd speed 1/min : 500

C-rod trav.mm : 10.50...10.70

SWITCH-OVER POINT

Speed 1/min : 170 (190)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 1100

Del.quantity cm3/ : 101.0...109.0

1000H.: (98.0...112.0)

Speed 1/min : 500

Del.quantity cm3/ : 77.0...85.0

1000H.: (74.0...88.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.50

Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 110.0...130.0

1000H.: (106.0...134.0)

LOW IDLE

Speed 1/min : 250

Contr.-rod trav.mm: 6.10...6.30

Del.quantity cm3/ : 15.0...20.0

1000H.: (12.5...22.5)

Dispersion cm3/ : 4.50
 1000H.: (7.50)

Remarks:

:

APPLICATION
Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ALO 13,8 B1
Edition : 9.12.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 402 046 159
Injection pump
Pump designation : PES6P120A32ORS354
Governor
Governor design. : RQV300...950PA362KR

Customer-spec. information
Customer : ALLIS-CHALMERS

Engine : 16.000-25.000

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8,00X2,00X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Contr.-rod trav.mm: 9.60
Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

M16

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 950
Contr.-rod trav.mm: 9.60
Del.quantity cm3/ : 20.4...20.6
100H.: (20.2...20.8)
Dispersion cm3/ : 0.4
100H.: (-)
2nd speed 1/min: 300
Contr.-rod trav. m: 4.80
Del.quantity cm3/ : 1.8...2.3
100H.: (-)

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 950
Cont.-rod travelmm: 15.20...17.50

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 950
Del.quantity cm3/ : 204.0...206.0
1000H.: (202.0...208.0)
Dispersion cm3/ : 4.0
1000H.: (-)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 62...70

Testing:
1st c-rod trav.mm : 16.35
Speed 1/min : 950
2nd c-rod trav.mm : 15.05
Speed 1/min : 1000
3rd c-rod trav.mm : 4.50...9.50
Speed 1/min : 1100
4th speed 1/min : 1150
C-rod trav.mm : 0...6.60
5th speed 1/min : 1250
C-rod trav.mm : 0...0.01

LOWEST RATED SPEED I

Control-lever
position degrees: 8...16

Testing:

Speed 1/min : 200
C-rod trav.mm min : 8.00
Speed 1/min : 270
C-rod trav.mm : 5.80...8.00
C-rod trav.mm : 4.10
Speed 1/min : 350
Speed 1/min : 380
C-rod trav.mm max : 3.15
Speed 1/min : 400
C-rod trav.mm : 3.00
C-rod trav.mm : -
Speed 1/min : 550

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750
Del.quantity cm3/ : 194.5...197.5
1000H.: (193.0...199.0)
Dispersion cm3/ : -
1000H.: (-)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.60
Speed 1/min : 990...1000

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 130.0...170.0
1000H.: (-)

LOW IDLE

Speed 1/min : 300
Del.quantity cm3/ : 17.0...24.0
1000H.: (-)

Remarks:

: ALLIS-CHALMERS NO.
: 4 395 448

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RVI 8,8 B 2
 Edition : 12.11.87
 Superceeded : 18.8.87
 Calibrating oil : ISO-4113
 Combination no. : 0 402 046 247
 Injection pump
 Pump designation : PES6P120A32ORS417
 EP type number : 0 412 026 036
 Governor
 Governor design. : RQV300...1150PAS27-1
 K
 Governor no. : 0 421 815 165

Customer-spec. information
 Customer : RVI

Engine : MIDR 062030

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 10.00...11.00
 & c-rod trav max. : 21.00

BASIC SETTING

1st speed 1/mi: 1150

 Contr.-rod trav.mm: 8.50...8.60

 Del.quantity cm3/ : 14.4...14.6

 100H.: (14.1...14.9)

 Dispersion cm3/ : 0.5

 100H.: (0.9)

 2nd speed 1/min: 600.0
 Contr.-rod trav. m: 5.2...5.4
 Del.quantity cm3/ : 1.8...2.4
 100H.: (1.5...2.7)
 Dispersion cm3/ : 0.8
 100H.: (1.2)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300
 Sleeve travel mm: 1.70...2.10
 2nd speed 1/min: 900
 Sleeve travel mm: 5.80...6.20
 3rd speed 1/min: 1150
 Sleeve travel mm: 8.00...8.20

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 1190
 Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 1150
 Del.quantity cm3/ : 144.0...146.0
 1000H.: (141.0...149.0)
 Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...6418

Testing:

1st c-rod trav.mm : 7.50

Speed 1/min : 1205...1215

2nd c-rod trav.mm : 4.00

Speed 1/min : 1260...1290

4th speed 1/min : 1450

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 62...70

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.30

Speed 1/min : 300

C-rod trav.mm : 3.30...3.50

CONSTANT REGULATION

Speed 1/min : 320...440

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150

C-rod trav.mm : 8.50...8.60

2nd speed 1/min : 750

C-rod trav.mm : 7.60...7.70

3rd speed 1/min : 500

C-rod trav.mm : 7.00...7.20

4th speed 1/min : 350

C-rod trav.mm : 7.00...7.20

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750

Del.quantity cm3/ : 122.0...128.0

1000H.: (119.0...131.0)

Speed 1/min : 500

Del.quantity cm3/ : 69.0...75.0

1000H.: (66.0...78.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 7.50

Speed 1/min : 1205...1215

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 140.0...160.0

1000H.: (136.0...164.0)

LOW IDLE

Speed 1/min : 300

Contr.-rod trav.mm: 3.30...3.50

Del.quantity cm3/ : 18.0...24.0

1000H.: (15.0...27.0)

Dispersion cm3/ : 8.00

1000H.: (12.00)

Remarks:

:

Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 9,6 B 1
 Edition : 6.12.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 402 076 714
 Injection pump
 Pump designation : PES6P110A72ORS3079
 EP type number : 0 412 016 711
 Governor
 Governor design. : RSV300...1150P1A486-
 1
 Governor no. : 0 421 833 210

Customer-spec. information
 Customer : KHD

Engine : BF6L413FRC

1st version kW : 199.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 13.70...13.80

Del.quantity cm3/ : 16.0...16.4

100H.: (15.7...16.7)

Dispersion cm3/ : 0.4

100H.: (0.75)

2nd speed 1/min: 300
 Contr.-rod trav. m: 7.50...7.70

Del.quantity cm3/ : 1.6...2.2

100H.: (-)

Dispersion cm3/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Charge press. hPa : 1200

Del.quantity cm3/ : 160.0...164.0

1000H.: (157.0...167.0)

Dispersion cm3/ : 4.0

1000H.: (7.5)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 48...56

Testing:

1st c-rod trav.mm : 12.70

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1220...1250
4th speed 1/min : 1390
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 9...17
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 7.60
Speed 1/min : 300
C-rod trav.mm : 7.50...7.70
C-rod trav.mm : 2.00
Speed 1/min : 310...370

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 550
Pressure hPa : 1200
Contr.-rod trav.mm: 13.70...13.80

Measurement
Speed 1/min : 550

1st pressure hPa : -
C-rod trav.mm : 12.30...12.40
2nd pressure hPa : 550
C-rod trav.mm : 13.40...13.50
3rd pressure hPa : 400
C-rod trav.mm : 12.60...12.80

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1200
Speed 1/min : 800
Del.quantity cm3/ : 158.0...162.0
1000H.: (155.0...165.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 123.0...125.0
1000H.: (120.0...128.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 12.70
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 170.0...190.0
1000H.: (-)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 55...63

Testing:
1st c-rod trav.mm : 9.20
Speed 1/min : 920...925
2nd c-rod trav.mm : 4.00
Speed 1/min : 970...1000
4th speed 1/min : 1100
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 6...14

Testing:
Speed 1/min : 100
C-rod trav.mm min : 5.30
Speed 1/min : 250
C-rod trav.mm : 3.70...3.90

CONSTANT REGULATION

Speed 1/min : 250...360

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.20
Speed 1/min : 920...925

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 220.0...260.0

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 3.70...3.90
Del.quantity cm³/ : 17.0...22.0
1000H.: (17.0...22.0)
Dispersion cm³/ : 5.00
1000H.: (7.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 16,2 B
 Edition : 20.11.87
 Superseded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 402 646 857
 Injection pump
 Pump designation : PE6P130A720RS7150
 EP type number : 0 412 636 808
 Governor
 Governor design. : RQV250...900PA881
 Governor no. : 0 421 813 676

Customer-spec. information
 Customer : VOLVO-PENTA

Engine : TAMD 162 (HD)

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 10.20...10.30

Del.quantity cm3/ : 29.2...29.4

100H.: (28.8...29.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.7...3.9

Del.quantity cm3/ : 1.7...2.2

100H.: (1.4...2.4)

Dispersion cm3/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 0.90...1.30

2nd speed 1/min: 350

Sleeve travel mm: 2.00...2.60

3rd speed 1/min: 700

Sleeve travel mm: 4.40...5.00

4th speed 1/min: 925

Sleeve travel mm: 7.30...7.50

5th speed 1/min: 985

Sleeve travel mm: 8.10...8.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 980

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 292.0...294.0

1000H.: (288.0...298.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 55...63

Testing:
1st c-rod trav.mm : 9.20
Speed 1/min : 920...925
2nd c-rod trav.mm : 4.00
Speed 1/min : 970...1000
4th speed 1/min : 1100
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Control-lever
position degrees: 63...71

Testing:
Speed 1/min : 100
C-rod trav.mm min : 5.30
Speed 1/min : 250
C-rod trav.mm : 3.70...3.90

CONSTANT REGULATION
Speed 1/min : 250...360

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 10.20...10.30

Measurement
Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 7.60...7.80
2nd pressure hPa : 740
C-rod trav.mm : 10.00...10.10
3rd pressure hPa : 300
C-rod trav.mm : 7.90...8.10

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm3/ : 192.5...195.5
1000H.: (189.0...199.0)

ROTATIONAL-SPEED LIMITATION

M25

1st version
1mm control-rod travel less than
full-load trav.mm: 9.20
Speed 1/min : 920...925

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 3.70...3.90
Del.quantity cm3/ : 17.0...22.0
1000H.: (14.5...24.5)
Dispersion cm3/ : 5.00
1000H.: (7.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,2 I
Edition : 20.11.87
Superceeded : 28.10.86
Calibrating oil : ISO-4113

Combination no. : 0 402 648 827

Injection pump
Pump designation : PE8P120A920/4LS7016
EP type number : 0 412 628 814
Governor
Governor design. : RQV200...950PA547-7
Governor no. : 0 421 813 550

Customer-spec. information
Customer : SCANIA

Engine : DSC14 06

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter
× Wall thickness
× Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 2- 7- 3- 4- 5-
 6- 8

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm3/ : 19.0...19.2

100H.: (18.7...19.5)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225.0
Contr.-rod trav. m: 4.9...5.1
Del.quantity cm3/ : 1.6...2.0
100H.: (-)
Dispersion cm3/ : 0.3
100H.: (0.6)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 225
Sleeve travel mm: 1.30...1.40
2nd speed 1/min: 330
Sleeve travel mm: 2.40...2.70
3rd speed 1/min: 420
Sleeve travel mm: 3.10...3.40
4th speed 1/min: 1000
Sleeve travel mm: 7.80...8.00
5th speed 1/min: 1100
Sleeve travel mm: 9.10...9.40

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1040
Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 700
Charge press. hPa : 900
Del.quantity cm3/ : 190.0...192.0
1000H.: (187.0...195.0)

Dispersion cm³/ : 6.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 56...64

Testing:

1st c-rod trav.mm : 11.60
Speed 1/min : 990...1000
2nd c-rod trav.mm : 4.00
Speed 1/min : 1090...1120
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 6...14

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.40
Speed 1/min : 225
C-rod trav.mm : 4.90...5.10
C-rod trav.mm : 2.00
Speed 1/min : 370...430

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 12.60...12.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 11.20...11.30
2nd pressure hPa : 215
C-rod trav.mm : 11.90...12.10

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900
Speed 1/min : 950
Del.quantity cm³/ : 184.0...192.0
1000H.: (182.0...194.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 158.0...162.0
1000H.: (156.0...164.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 11.60
Speed 1/min : 990...1000

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 240.0...290.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 225
Contr.-rod trav.mm: 4.90...5.10
Del.quantity cm³/ : 16.0...20.0
Dispersion cm³/ : 3.00
1000H.: (6.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on 1986-09-16

Start of delivery - engine: 17° before
TDC
Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 A 9
Edition : 20.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 402 648 842

Injection pump
Pump designation : PE8P120A320LS7801-1
EP type number : 0 412 628 818
Governor
Governor design. : RQV350..950PA866-2
Governor no. : 0 421 813 673

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442 A

1st version kW : 275.0
Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
Contr.-rod trav.mm: 20.00...21.00
Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 950

Contr.-rod trav.mm: 15.30...15.40

Del.quantity cm3/ : 20.9...21.1

100H.: (20.6...21.4)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.2...6.6

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 0.60...0.80

2nd speed 1/min: 425

Sleeve travel mm: 2.40...2.60

3rd speed 1/min: 800

Sleeve travel mm: 5.30...5.60

4th speed 1/min: 1000

Sleeve travel mm: 7.80...8.20

5th speed 1/min: 1120

Sleeve travel mm: 9.50...10.00

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: ?

Cont.-rod travelmm: 16.50...18.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 950
Charge press. hPa : 950
Del. quantity cm3/ : 209.0...211.0
1000H.: (206.0...214.0)
Dispersion cm3/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 60...68

Testing:
1st c-rod trav.mm : 14.40
Speed 1/min : 990...1000
2nd c-rod trav.mm : 4.00
Speed 1/min : 1090...1120
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever
position degrees: 8...16

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.90
Speed 1/min : 350
C-rod trav.mm : 6.20...6.40

CONSTANT REGULATION

Speed 1/min : 300...500

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 950
C-rod trav.mm : 15.30...15.40
2nd speed 1/min : 800
C-rod trav.mm : 16.40...16.60
3rd speed 1/min : 900
C-rod trav.mm : 15.90...16.10

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 600
Pressure hPa : -
Contr.-rod trav.mm: 10.90...11.30

Measurement

Speed 1/min : 600
1st pressure hPa : 450
C-rod trav.mm : 11.70...11.90

NO2

2nd pressure hPa : 700
C-rod trav.mm : 13.80...14.00

SWITCH-OVER POINT

Speed 1/min : 270 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 950
Speed 1/min : 800
Del. quantity cm3/ : 233.0...237.0
1000H.: (230.0...240.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del. quantity cm3/ : 143.0...145.0
1000H.: (140.0...148.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 14.40
Speed 1/min : 990...1000

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm3/ : 190.0...210.0
1000H.: (186.0...214.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 21,9 Y 2
 Edition : 12.11.87
 Superceeded : -
 Calibrating oil : ISO-4113
 Combination no. : 0 402 670 805
 Injection pump
 Pump designation : PE12P120A32OLS7807-2
 EP type number : 0 412 620 812
 Governor
 Governor design. : RSV375..1050POA535-1
 Governor no. : 0 421 833 282

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kW : 491.0
 Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 150...170

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 12- 1- 5- 9- 8- 3-
 4- 11- 10- 2- 6- 7

SD ang. spacing⁰CS: 0-45-60-105-120-165-
 180-225-240-285-300-
 345
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 12

BASIC SETTING

1st speed 1/mi: 650

 Contr.-rod trav.mm: 14.70...14.90

 Del.quantity cm3/ : 21.6...21.9

 100H.: (21.3...22.2)

 Dispersion cm3/ : 0.5

 100H.: (0.9)

 2nd speed 1/min: 375.0
 Contr.-rod trav. m: 5.6...5.8
 Del.quantity cm3/ : 1.6...2.2
 100H.: (1.3...2.5)
 Dispersion cm3/ : 0.8
 100H.: (1.2)

SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed 1/min: 800
 Contr.-rod travelmm: 0.30...0.70

Governor-spring reload
 Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 650
 Charge press. hPa : 800
 Del.quantity cm3/ : 216.0...219.0
 1000H.: (213.0...222.0)
 Dispersion cm3/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
 Control-lever
 position degrees: 36...44

Testing:
 1st c-rod trav.mm : 13.50
 Speed 1/min : 1070...1080
 2nd c-rod trav.mm : 4.00
 Speed 1/min : 1130...1160
 4th speed 1/min : 1400
 C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
 position degrees: 13...21
 Setting point w/out aux. spring
 Speed 1/min : 375
 Contr.-rod trav.mm: 5.7

Testing:
 Speed 1/min : 100
 C-rod trav.mm min : 9.50
 Speed 1/min : 375
 C-rod trav.mm : 5.60...5.80

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version
 1st speed 1/min : 1030
 C-rod trav.mm : 14.50...14.70
 2nd speed 1/min : 925
 C-rod trav.mm : 15.10...15.30
 3rd speed 1/min : 830
 C-rod trav.mm : 15.70...15.90

Adjustment test, manifold-pressure
 compensator (LDA,ADA,ALDA)

1st version
 Setting
 Speed 1/min : 600
 Pressure hPa : 800
 Contr.-rod trav.mm: 14.70...14.90

Measurement
 Speed 1/min : 600

1st pressure hPa : 350
 C-rod trav.mm : 12.20...12.40
 2nd pressure hPa : 550
 C-rod trav.mm : 13.70...13.90
 3rd pressure hPa : 1000
 C-rod trav.mm : 15.00...15.20
 4th pressure hPa : 1100
 C-rod trav.mm : 15.40...15.60

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1250

Speed 1/min : 1030

Del.quantity cm3/ : 221.0...223.0

1000H.: (218.0...226.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

Charge press. hPa : 1250

Speed 1/min : 800

Del.quantity cm3/ : 237.0...241.0

1000H.: (234.0...244.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 134.0...136.0

1000H.: (131.0...139.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.50

Speed 1/min : 1070...1080

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 240.0...260.0

1000H.: (236.0...264.0)

Remarks:

:

Observe VDT-I-420/120

0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM 28,8 D1
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 402 678 806
Injection pump
Pump designation : PE8P120A520/SRS7145
EP type number : 0 412 628 822
Governor
Governor design. : RSUV325...1150POA358
Governor no. : 0 421 829 106

Customer-spec. information
Customer : MWM

Engine : TBD234V16

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Calibrating nozzle-holder
assembly : 1 688 901 019
Opening
pressure, bar : 207...210
Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)

N06

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 2- 3- 4- 7- 8-
5- 6

SD ang. spacing°CS: 0-30-90-120-225-255-
315-345
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 800
Contr.-rod trav.mm: 14.90...15.01
Del.quantity cm3/ : 26.0...26.2
100H.: (25.7...26.5)
Dispersion cm3/ : 0.5
100H.: (0.9)

2nd speed 1/min: 325.0
Contr.-rod trav. m: 6.0...6.2
Del.quantity cm3/ : 3.0...4.0
100H.: (2.7...4.3)
Dispersion cm3/ : 0.6
100H.: (1.0)
3rd speed 1/min: 1100
Contr.-rod trav.mm: 6.90...7.10
Del.quantity cm3/ : 1.0...6.0 *
100H.: (-)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Contr.-rod travelmm: 0.30...0.70

Governor-spring reload
Notch setting x : 4.00

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 50...58

Testing:
1st c-rod trav.mm : 13.90
Speed 1/min : 1190...1200
2nd c-rod trav.mm : 4.00
Speed 1/min : 1280...1310
4th speed 1/min : 1440
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I
Control-lever

position degrees: 16...24
Setting point w/out aux. spring
Speed 1/min : 325
Contr.-rod trav.mm: 5.6
Speed 1/min : 325
C-rod trav.mm : 5.50...5.70
C-rod trav.mm : 2.00
Speed 1/min : 420...480

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 14.90...15.00

Measurement
Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 9.30...9.50
2nd pressure hPa : 625
C-rod trav.mm : 14.70...14.80
3rd pressure hPa : 250
C-rod trav.mm : 11.30...11.50

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 13.90
Speed 1/min : 1190...1200

LOW IDLE

Speed 1/min : 325
Contr.-rod trav.mm: 6.00...6.20
Del.quantity cm3/ : 30.0...40.0
1000H.: (27.0...43.0)
Dispersion cm3/ : 6.00
1000H.: (10.00)

Remarks:

Pump runs in tandem

Full-load delivery not known. Set
according to engine test report.

* = Element disconnected at idle for
cylinders 2, 4, 6 and 8
Hydraulic latching of starting
delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.35 bar...0.45 bar.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 G 3
Edition : 07.12.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 402 678 808
Injection pump
Pump designation : PE8P120A32OLS7801-2
EP type number : 0 412 628 825
Governor
Governor design. : RSV350...10S0POA535
Governor no. : 0 421 833 281

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442LA

1st version kW : 320.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (4.15...5.35)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 14.50...14.60

Del.quantity cm3/ : 21.5...21.8

100H.: (21.2...22.1)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.6...5.8

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600

Charge press. hPa : 750

Del.quantity cm3/ : 215.0...218.0

1000H.: (212.0...221.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 36...44

Testing:
1st c-rod trav.mm : 14.20
Speed 1/min : 1070...1080
2nd c-rod trav.mm : 4.00
Speed 1/min : 1130...1160
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 5.7

Testing:
Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 350
C-rod trav.mm : 5.60...5.80
C-rod trav.mm : 2.00
Speed 1/min : 360...420

SET IDLE AUXILIARY SPRING
Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1030
C-rod trav.mm : 15.20...15.30
2nd speed 1/min : 850
C-rod trav.mm : 15.70...15.90
3rd speed 1/min : 925
C-rod trav.mm : 15.40...15.60

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 600
Pressure hPa : 750
Contr.-rod trav.mm: 14.50...14.60

Measurement
Speed 1/min : 600

1st pressure hPa : 400
C-rod trav.mm : 12.20...12.40
2nd pressure hPa : 550
C-rod trav.mm : 13.70...13.90
3rd pressure hPa : 950
C-rod trav.mm : 14.90...15.10
4th pressure hPa : 1050
C-rod trav.mm : 15.30...15.50

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1250
Speed 1/min : 1030
Del.quantity cm3/ : 230.0...232.0
1000H.: (227.0...235.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1250
Speed 1/min : 850
Del.quantity cm3/ : 242.0...245.0
1000H.: (239.0...248.0)
Dispersion cm3/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm3/ : 147.0...149.0
1000H.: (144.0...152.0)
Dispersion cm3/ : 8.00
1000H.: (-)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 14.20
Speed 1/min : 1070...1080

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 240.0...260.0
1000H.: (236.0...264.0)

Remarks:

:

Observe VDT-I-420/120

0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 12,2 B
 Edition : 20.11.87
 Superceeded : 1.9.87
 Calibrating oil : ISO-4113
 Combination no. : 0 402 746 809
 Injection pump
 Pump designation : PES6P120A720RS7132
 EP type number : 0 412 726 806
 Governor
 Governor design. : RQ750PA836
 Governer no. : 0 421 801 373

Customer-spec. information
 Customer : PERKINS

Engine : EAGLE LE

1st version kW : 240.0
 Speed 1/min: 1500

TEST BENCH REQUIREMENTS

Calibrating-pil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 4- 2- 6- 3- 5

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 15.90...16.00

Del.quantity cm3/ : 33.9...34.1

100H.: (33.6...34.4)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm3/ : 3.8...4.4

100H.: (3.5...4.7)

Dispersion cm3/ : 0.8

100H.: (1.2)

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 339.0...341.0

1000H.: (336.0...344.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 27...35

Testing:

1st c-rod trav.mm : 14.90

Speed 1/min : 750...755

2nd c-rod trav.mm : 4.00

Speed 1/min : 785...795

4th speed 1/min : 820

C-rod trav.mm : 0.00...1.00

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 14.90

Speed 1/min : 750...755

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 210.0...240.0

Contr.-rod trav.mm: 20.00...21.00

Remarks:

APPLICATION :

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 13
Edition : 07.12.87
Superceeded : -
Calibrating oil : ISO-4113
Combination no. : 0 403 446 179
Injection pump
Pump designation : PESSMW100/72ORS1139
EP type number : 0 413 406 134
Governor
Governor design. : RQV300...1300MW74
Governor no. : 0 420 083 112

Customer-spec. information
Customer : DB

Engine : OM366LA

1st version kW : 170.0
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness : 6.00X1.50X600
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS:
0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1300
Contr.-rod trav.mm: 11.00...11.10
Del.quantity cm3/ : 7.6...7.8
100H.: (7.0...8.0)
Dispersion cm3/ : 0.3
100H.: (0.6)
2nd speed 1/min: 300
Contr.-rod trav. m: 7.8...7.9
Del.quantity cm3/ : 1.0...1.4
100H.: (0.9...1.5)
Dispersion cm3/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1340
Sleeve travel mm: 8.50...8.70
2nd speed 1/min: 1450
Sleeve travel mm: 9.50...9.70
3rd speed 1/min: 700
Sleeve travel mm: 3.90...4.50
4th speed 1/min: 300
Sleeve travel mm: 1.30...1.70

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1335
Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1300
Del.quantity cm3/ : 76.0...78.0
1000H.: (74.0...80.0)
Dispersion cm3/ : 3.5
1000H.: (6.0)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 50...58

Testing:

1st c-rod trav.mm : 10.00
Speed 1/min : 1340...1350
2nd c-rod trav.mm : 4.0
Speed 1/min : 1425...1455
4th speed 1/min : 1550
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 18...26
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 7.8

Testing:

Speed 1/min : 100
C-rod trav.mm min : 9.70
Speed 1/min : 300
C-rod trav.mm : 7.80...7.90

CONSTANT REGULATION

Speed 1/min : 330...600

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300
C-rod trav.mm : 11.00...11.10
2nd speed 1/min : 750
C-rod trav.mm : 11.70...11.80
3rd speed 1/min : 1125
C-rod trav.mm : 11.40...11.50

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750
Del.quantity cm3/ : 68.0...70.0
1000H.: (65.0...73.0)
Dispersion cm3/ : 5.0
1000H.: (7.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00
Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

N13

Speed 1/min : 100
Del.quantity cm3/ : 80.0...90.0
1000H.: (77.0...93.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 7.80...7.90
Del.quantity cm3/ : 10.0...14.0
1000H.: (9.0...15.0)
Dispersion cm3/ : 3.50
1000H.: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 J 1
 Edition : 06.11.87
 Superceeded : 4.3.87
 Calibrating oil : ISO-4113
 Combination no. : 9 400 230 046
 Injection pump
 Pump designation : PES6A9SD410RS2561
 EP type number : 9 410 230 006
 Governor
 Governor design. : RSV600...1100A2C2048
 -1L
 Governor no. : 9 420 234 157
 Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466T
 1st version kW : 110.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp, °C : 38...42
 Overflow valve : 1 413 385 007
 Inlet press., bar : 1.50
 Calibrating nozzle-holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test inj. tubing : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.35X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 27...29
 Prestroke mm : 1.85...1.95
 : (1.80...2.00)

Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 9.90...10.00

Del.quantity cm3/ : 9.1...9.3

100H.: (8.9...9.5)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 600.0

Contr.-rod trav. m: 5.0...5.2

Del.quantity cm3/ : 1.2...1.6

100H.: (0.9...1.8)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Del.quantity cm3/ : 91.0...93.0

1000H.: (89.0...95.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 44...52

Testing:

1st c-rod trav.mm : 8.90

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1195...1225

4th speed 1/min : 1300

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 24...32

Setting point w/out aux. spring

Speed 1/min : 600

Contr.-rod trav.mm: 4.6

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 600

C-rod trav.mm : 5.00...5.20

C-rod trav.mm : 2.00

Speed 1/min : 710...770

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 9.90...10.00

2nd speed 1/min : 950

C-rod trav.mm : 10.70...10.90

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 950

Del.quantity cm3/ : 104.0...108.0

1000H.: (101.5...110.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.90

Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 155.0...175.0

1000H.: (150.0...180.0)

Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

1st version

Speed 1/min : 1200

Contr.-rod trav.mm: 4.70...4.90

LOW IDLE

Speed 1/min : 600

Contr.-rod trav.mm: 5.00...5.20

Del.quantity cm3/ : 12.0...16.0

1000H.: (9.5...18.5)

Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

: JOHN DEERE
: # RE 10472

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1. rque-control
pring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 J
 Edition : 06.11.87
 Superceeded : 7.86
 Calibrating oil : ISO-4113
 Combination no. : 9 400 230 047
 Injection pump
 Pump designation : PES6A95D41ORS2561
 EP type number : 9 410 230 006
 Governor
 Governor design. : RSV600...1100A2C2049
 -1L
 Governor no. : 9 420 234 158

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466TH-02

1st version kW : 125.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 413 385 007

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 9 681 271 001

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 1.85...1.95
 : (1.80...2.00)

Contr.-rod trav.mm: 10.50...10.50
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
 Tolerance + -⁰ : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

 Contr.-rod trav.mm: 10.60...10.70

 Del.quantity cm3/ : 10.7...10.9

 100H.: (10.5...11.1)

 Dispersion cm3/ : 0.3

 100H.: (0.6)

2nd speed 1/min: 600.0
 Contr.-rod trav. m: 4.9...5.1
 Del.quantity cm3/ : 1.2...1.6
 100H.: (0.9...1.8)
 Dispersion cm3/ : 0.3
 100H.: (0.5)

SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed 1/min: 800
 Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 1100
 Del.quantity cm3/ : 107.0...109.0
 1000H.: (105.0...111.0)
 Dispersion cm3/ : 3.50
 1000H.: (6.00)

HIGHEST RATED SPEED

1st version
 Control-lever
 position degrees: 43...51

Testing:
 1st c-rod trav.mm : 9.60
 Speed 1/min : 1145...1155
 2nd c-rod trav.mm : 4.00
 Speed 1/min : 1200...1230
 4th speed 1/min : 1300
 C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 24...32
Setting point w/out aux. spring
Speed 1/min : 600
Contr.-rod trav.mm: 4.5

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.00
Speed 1/min : 600
C-rod trav.mm : 4.40...4.60
C-rod trav.mm : 2.00
Speed 1/min : 705...765

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 10.60...10.70
2nd speed 1/min : 950
C-rod trav.mm : 11.50...11.70

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 950
Del.quantity cm3/ : 120.0...124.0
1000H.: (118.5...125.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.60
Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 155.0...175.0
1000H.: (150.0...180.0)
Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

1st version

Speed 1/min : 1200
Contr.-rod trav.mm: 4.70...4.90

LOW IDLE

Speed 1/min : 600
Contr.-rod trav.mm: 4.90...5.10
Del.quantity cm3/ : 12.0...16.0
1000H.: (9.5...18.5)

Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

: JOHN DEERE
: # RE28881

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1. rque-control
pring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet :
Edition : 06.11.87
Superceeded :
Calibrating oil : ISO-4113

Combination no. : 9 400 230 055

Injection pump
Pump designation : PES6A95D320LS2647
EP type number : 9 410 230 020
Governor
Governor design. : RSV375...1050A2C2034
-3R
Governor no. : 9 420 234 152

Customer-spec. information
Customer : J.I. CASE

Engine : A504 BDT

1st version kW : 163.0

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 0 681 273 009

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 9 681 271 020

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar : 27...29

Prestroke mm : 2.55...2.65
: (2.50...2.70)
Contr.-rod trav.mm: 10.50...10.50

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/m³: 1050

Contr.-rod trav.mm: 13.40...13.50

Del.quantity cm³/ : 14.9...15.1

100H.: (14.7...15.3)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 375.0
Contr.-rod trav. m: 5.4...5.6
Del.quantity cm³/ : 1.6...2.2
100H.: (1.4...2.5)
Dispersion cm³/ : 0.3
100H.: (0.5)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Contr.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1050
Del.quantity cm³/ : 149.0...151.0
1000H.: (147.0...153.0)
Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 44...52

Setting point:
Speed 1/min : 800
Contr.-rod trav.mm: 0.5

Testing:
1st c-rod trav.mm : 11.90
Speed 1/min : 1090...1100
2nd c-rod trav.mm : 4.00
Speed 1/min : 1160...1190

3rd c-rod trav.mm : 4.00
4th speed 1/min : 1250
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 20...28
Setting point w/out aux. spring
Speed 1/min : 375
Contr.-rod trav.mm: 5.5

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.00
Speed 1/min : 375
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 535...595

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1050
C-rod trav.mm : 13.40...13.50
2nd speed 1/min : 750
C-rod trav.mm : 14.10...14.50

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750
Del.quantity cm3/ : 152.5...161.5
1000H.: (151.5...163.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.90
Speed 1/min : 1090...1100

MIDDLE RATED SPEED

Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 135.0...155.0
1000H.: (130.0...160.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 375
Contr.-rod trav.mm: 5.40...5.60
Del.quantity cm3/ : 16.5...22.5
1000H.: (14.0...25.0)

Dispersion cm3/ : 3.50
1000H.: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 8,3 G 4
 Edition : 06.11.87
 Superceeded : 7.86
 Calibrating oil : ISO-4113
 Combination no. : 9 400 230 056
 Injection pump
 Pump designation : PES6A95D32OLS2647
 EP type number : 9 410 230 020
 Governor
 Governor design. : RSV375...1050A2C2034
 -4R
 Governor no. : 9 420 234 153

Customer-spec. information
 Customer : J.I. CASE

Engine : A504BDT

1st version kW : 148.5
 Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 9 681 273 009

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 9 681 271 020

Outside diameter
 x Wall thickness
 x Length mm : 6.35X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
 : (2.70...2.90)

Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 11.80...11.90

Del.quantity cm3/ : 12.7...12.9

100H.: (12.5...13.1)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 375.0

Contr.-rod trav. m: 4.9...5.1

Del.quantity cm3/ : 1.4...2.0

100H.: (1.1...2.2)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050

Del.quantity cm3/ : 127.5...129.5

1000H.: (125.5...131.5)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 42...50

Testing:

1st c-rod trav.mm : 10.80

Speed 1/min : 1080...1100

2nd c-rod trav.mm : 4.00

Speed 1/min : 1165...1185

4th speed 1/min : 1250

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 20...28

Setting point w/out aux. spring

Speed 1/min : 375

Contr.-rod trav.mm: 5.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 375

C-rod trav.mm : 4.90...5.10

C-rod trav.mm : 2.00

Speed 1/min : 510...570

SET IDLE AUXILIARY SPRING

Speed 1/min : 1200

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1050

C-rod trav.mm : 11.80...11.90

2nd speed 1/min : 750

C-rod trav.mm : 12.00...12.20

3rd speed 1/min : 600

C-rod trav.mm : 12.10...12.30

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750

Del.quantity cm3/ : 129.0...133.0

1000H.: (127.0...135.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.80

Speed 1/min : 1080...1100

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 12.0...16.0

1000H.: (11.0...17.0)

Contr.-rod trav.mm: 21.00...21.00

LOW IDLE

Speed 1/min : 375

Contr.-rod trav.mm: 4.90...5.10

Del.quantity cm3/ : 14.0...20.0

1000H.: (11.5...22.5)

Dispersion cm³/ : 3.50
 1000H.: (5.50)

Remarks:

:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 H 2
Edition : 06.11.87
Superceeded : 7.86
Calibrating oil : ISO-4113
Combination no. : 9 400 230 066
Injection pump
Pump designation : PES6A100D41ORS2676
EP type number : 9 410 230 023
Governor
Governor design. : RSV425...1100A2C2161
-1L
Governor no. : 9 420 234 133

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466T

1st version kW : 120.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
: (2.40...2.60)

Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 9.40...9.40

Del.quantity cm3/ : 9.9...10.1

100H.: (9.7...10.3)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 425.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm3/ : 2.1...2.5

100H.: (1.8...2.7)

Dispersion cm3/ : 0.7

100H.: (0.9)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 450

Del.quantity cm3/ : 99.0...101.0

1000H.: (97.0...103.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 46...54

Testing:

1st c-rod trav.mm : 8.40

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1195...1225

4th speed 1/min : 1300

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 24...32

Setting point w/out aux. spring

Speed 1/min : 425

Contr.-rod trav.mm: 4.9

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 425

C-rod trav.mm : 4.30...5.50

C-rod trav.mm : 2.00

Speed 1/min : 600...660

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 9.40...9.40

2nd speed 1/min : 750

C-rod trav.mm : 10.60...10.80

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 173

Contr.-rod trav.mm: 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.10...9.30

2nd pressure hPa : 80

C-rod trav.mm : 9.40...9.80

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 450

Speed 1/min : 750

Del.quantity cm3/ : 116.0...119.0

1000H.: (113.5...121.5)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : -

1000H.: (84.0...92.0)

Charge press. hPa : -

Speed 1/min : 750

Dispersion cm3/ : 4.00

1000H.: (4.00)

ROTATIONAL-SPEED LIMITATION

N25

1st version

1mm control-rod travel less than

full-load trav.mm: 8.40

Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 190.0...210.0

1000H.: (185.0...215.0)

Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

1st version

Speed 1/min : 1195

Contr.-rod trav.mm: 4.70...4.90

LOW IDLE

Speed 1/min : 425

Contr.-rod trav.mm: 5.30...5.50

Del.quantity cm3/ : 21.0...25.0

1000H.: (18.5...27.5)

Dispersion cm3/ : 7.00

1000H.: (9.00)

Remarks:

: JOHN DEERE #

: 23746

Adjustment without torque-control spring retainer with 1 mm less

Start-of-delivery mark = 15.5° after start of delivery cyl. 1. rque-control pring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 H
Edition : 06.11.87
Superceeded : 7.86
Calibrating oil : ISO-4113
Combination no. : 9 400 230 067
Injection pump
Pump designation : PES6A100D410RS2676
EP type number : 9 410 230 023
Governor
Governor design. : RSV425...1100A2C2161
-2L
Governer no. : 9 420 234 100

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466A

1st version kW : 141.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
: (2.40...2.60)

Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 10.20...10.30

Del.quantity cm3/ : 11.1...11.3

100H.: (10.9...11.5)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 425.0

Contr.-rod trav. m: 5.8...6.0

Del.quantity cm3/ : 2.4...2.8

100H.: (2.1...3.0)

Dispersion cm3/ : 0.7

100H.: (0.9)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 500

Del.quantity cm3/ : 111.0...113.0

1000H.: (109.0...115.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 43...51

Testing:

1st c-rod trav.mm : 9.20

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1190...1220

4th speed 1/min : 1300

C-rod trav.mm : 0.30...1.40